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ABSTRACT

This research project represents an attempt to capitalize on the study opportunity provided by the simultaneous operation of seven teacher training programs by one institution and to cope with problems which normally have plagued teacher training program evaluation efforts: lack of validation of performance criteria, nonequivalence of trainees in different programs, varying objectives, and insufficient data. In trying to discern relationships among selected variables, one major purpose was to identify teaching performances that potentially are more sensitive to training efforts. A series of factor analyses of selected subsets of variables did not reveal any factor which accounted for more than 10 percent of the variance. Teaching characteristics tended not to appear in factors containing entry program variables, although grade level taught did have a relationship with teaching variables such as indirect verbal influence. (Suggestions for subsequent multivariate approaches to the study of teacher education are provided; they include recommendations to reduce the range of grade levels included in any one study.) (Author/JA)

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FINAL REPORT

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A COMPARATIVE MULTIVARIATE ANALYSIS OF COMPETENCY-BASED TEACHER EDUCATION PROGRAMS

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PREFACE

Although it is unusual to do so, we would like to clarify the relative contributions of the listed authors to this report. It is customary for authors to be listed alphabetically when contributions are unequal. In this case, the relative contributions of the authors happen to correspond to the alphabetical order of their names, and since the contributions were very unequal, it was felt that this comment was necessary.

The vast majority of the work (and pain and suffering) of this project was borne by Burton Grover. He was responsible for the basic idea, obtaining funding, day-to-day management of data collection, and writing of the final report. Jerald King was involved in data collection and preparation and performed the statistical analyses. My function was mainly that of statistical consultant and editor.

--Robert M. Thorndike

SPECIAL NOTE

Non-local support for this project came from two sources within the U.S. Office of Education--Teacher Corps and Regional Research. As a consequence, the project has two project numbers and two contract or grant numbers which conceivably could cause some problem in referencing. All numbers are listed on the cover and title pages. The numbers on the left (Project No. 571930) were assigned by Teacher Corps and those on the right (Project No. 2-5-004) were assigned by Region X, Regional Research.

ACKNOWLEDGMENTS

The project described in this report could not have been accomplished without the work and cooperation of several people. Mrs. Barbara Rupers deserves special mention for her knowledgeable and diligent efforts relating to almost all aspects of the project. Her work was essential not only to data collection but also to their processing, retrieval, and certain thankless, grubby tasks of preliminary analysis.

Robert Bennett, Vancouver, B. C., was instrumental in data collection and establishing procedural arrangements with schools for data collection. Mr. Bennett shared the accomplishment of this formidable task with Mrs. Rupers and Jerald King.

Project completion depended upon the interested cooperation of several persons associated with the Teacher Education programs including Robert Pinney, Bearnice Skeen, Roberta Bouverat, Tom Savage, Richard Covington, and George Lamb. Vernon O. Tyler not only cooperated in the study of his training program but also worked on design and instrumentation matters concerned with the project. Mrs. Margaret Keagle was especially helpful in working out arrangements with the local districts.

Richard Parker and John Schaller provided needed assistance during the later stages of data analysis.

The project would not have been undertaken had there not been a set of seven training programs to study, programs which in large part were field-centered and were seriously grappling with the issues of competency-based training. A necessary--and maybe even sufficient--condition for their existence was F. Herbert Hite.

Although not customary to acknowledge government personnel in a final report, it is difficult to conclude this section without expressing appreciation for the supportive nature of contacts from two U. S. Office of Education officials, Ursula Wagener and John Bean.

- Burton L. Grover

SUMMARY

The research project entitled, "A Comparative Multivariate Analysis of Competency Based Teacher Education Programs," represented an attempt to capitalize on the study opportunity provided by the simultaneous operation of seven teacher training programs by one institution and to cope with problems which normally have plagued teacher training program evaluation efforts: lack of validation of performance criteria, non-equivalence of trainees in different programs, varying objectives, and insufficient data. In trying to discern relationships among selected variables, one major purpose was to identify teaching performances that potentially are more sensitive to training efforts.

Data were gathered on a large number of variables (exact number depends upon how breakdowns of general variables are counted) on 114 subjects in seven training programs. Variables were of three general kinds: entry characteristics, program and setting characteristics, and teaching and exit characteristics. Data-collection included an average of three observations of subject in the classroom according to an eclectic, systematic procedure.

A series of factor analyses of selected subsets of variables did not reveal any factor which accounted for more than 10 percent of the variance. Teaching characteristics tended not to appear in factors containing entry or program variables, although grade level taught did have a relationship with teaching variables such as indirect verbal influence.

A multiple discriminant analysis of teaching variables among programs revealed two significant discriminant functions. The discriminant analysis of entry characteristics revealed three significant functions. The canonical correlation between entry and teaching characteristics was not significant; however, the correlation of program and setting variables with teaching variables was significant. The strongest single contributor to this latter analysis was grade level among the program and setting variables.

Suggestions for subsequent multivariate approaches to the study of teacher education are provided and include the recommendation to reduce the range of grade levels included in any one study.

SECTION I

INTRODUCTION

A number of elements comprise the background for this research project.

First of all, there was the recent emphasis on "competency-based" teacher education programs. The emphasis was exemplified by the USOE sponsorship of the elementary teacher education models[1] and preferred criteria for federal funding of teacher training programs. With the discussion of competency-based programs came the obvious question of which competencies. The verbal emphasis on performance criteria in general did not reveal a common agreement or understanding of those specific competencies that deserved greatest emphasis and could serve as goals for program planning.

Second, the lack of agreement or clarity on performance criteria was not surprising in light of what is not known about the impact of teaching variables. Research in teacher effectiveness has yet to yield a body of knowledge from which mutually acceptable performance criteria can be derived, that is, criteria which are reasonably stable, related to pupil learning, and subject to change as a result of training.[2]

Thirdly, Western Washington State College had initiated a variety of teacher education programs immediately prior to this research study. The programs were begun within the general context of the competency-based emphasis and one model, in particular, "Comfield." Each training program appeared to have unique features which gave rise to both questions and opportunities for comparative study.

A fourth element was the frustration associated with plans to evaluate the new programs. Development and initial management of the programs left little time for internal systematic program evaluation, either for formative or summative purposes; and the additional resources that could be committed to evaluation, whether from federal, state or local sources, were severely limited. A national plan for evaluation of one program had, in fact, been stopped because of funding shifts at the federal level before the training program was halfway completed.

Even if adequate resources for evaluation had been available,

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[1] Allen, D. V., and J. M. Cooper, 1968. Model Elementary Teacher Education Program. Washington, D.C.: USOE Bureau of Research, U.S. Government Printing Office, FS 5.258:58022.

[2] Rosenshine, Barak and Norma Furst. "Research on Teacher Performance Criteria," Research in Teacher Education, B. O. Smith, Editor. Englewood Cliffs, New Jersey, Prentice-Hall, 1971.

there remained not only the uncertainty about valid performance criteria but also the uncertainty about an appropriate evaluation-research paradigm. The rarity of comparative evaluations of teacher education programs can be ascribed to several difficulties involved in such field research. Controlled manipulation of training variables has been almost impossible because of the size of the training efforts and the need for negotiating and adapting arrangements to varying public school situations. Moreover, the types of students going into various programs have likely been quite different (because of different institutions, different locations, and the differences in advertised features of the programs) and not subject to controlled random assignment, with the result that student differences and training variable effects are difficult if not impossible to separate. The field situations of the program also have provided variations in classroom settings and field supervisors, which may have had as much or more of an effect on what is learned about teaching than effects of training variables.

Still other factors which have complicated current research planning in teacher education are recent developments in classroom organization and instruction. These have included attempts at "open" classroom arrangements, individualized programs, and adaptation of British Infant school instructional patterns. With these changes have come changes in teachers' roles and possibly a reduction in the appropriateness of measurement procedures based on older roles.

The aforementioned elements, coupled with a desire to utilize the natural laboratory provided by seven different training programs, led to a research plan based on certain operating assumptions:

1. Controlled manipulation of training variables and controlled assignment of students to programs for research purposes were not feasible. As a result, any study would have to be essentially descriptive and not experimental, and no causal conclusions could be drawn.

2. A comparative study of different training programs was potentially more rewarding than a progress-toward-objectives or management-type analysis of a single program, particularly because trainee and setting factors of a program could be unique and also because program directors were already attempting progress-toward-objectives management as part of their regular responsibilities.

3. Because of the lack of established criteria for screening or identifying variables on the basis of relevance to teaching effectiveness, and because of the newer elements of the trainee programs, as many variables should be studied as possible.

4. In order for a comparative study of the different training programs to have any chance of yielding useful results, differences in characteristics of trainees prior to their entry into the programs must somehow be taken into account.

5. In order for a comparative study of the different training programs to have any chance of yielding useful results, differences in the characteristics of the field setting and cooperating school personnel must somehow be taken into account.

6. For any variable to be included in the study, its measurement must yield data (a) from all seven training programs and (b) in a scalable form suitable for multivariate analysis. (The presence or absence of a certain characteristic in a program would be suitable data; however, the measured variations of a feature present in some programs but absent in others would be difficult or impossible to handle meaningfully.) Data on a variable from one program but not from another, however valuable, could not be included.

7. In order to have any potential relevance to teaching effectiveness and as valid guidelines for teacher education programs, at least part of the data must be gathered from classroom observation.

8. Multivariate data analyses have potential for revealing patterns and interrelationships which have implications for teacher training. In order that any meaning can be derived from a large number of studied variables, multivariate analyses are in fact a necessity.

9. A sequence of different multivariate analytical procedures can be legitimately applied to the data with subsequent analyses determined in part by findings from the initial analyses.

Although no legitimate inferences about causal relationships could be drawn from the series of analyses, any patterns and relationships discovered have potential as leads and hypotheses, both for further research and, in lieu of other established findings, as suggested guides for program development.

From these operating assumptions the major thrust of the study was to compile and analyze a data matrix organized along two major dimensions, trainees and variables. The trainee dimension was divided into seven groups according to the training program from which the trainees were selected. The variable dimension was roughly divided into three categories, one for characteristics of trainees prior to entry to the program, one for characteristics and setting of the training program in which they were enrolled, and one for teaching characteristics of trainees as they participated in or completed the program. The object was to have a datum on each variable for each trainee, including data on his training program.

The major purpose of the study, that which guided the selection of variables and the organization and analysis of data, was to identify those teaching characteristics which were associated with (and thereby possibly sensitive to) training variables. In addition, differences and similarities of trainees in the various programs were to be described. Another underlying implicit and important purpose was to develop and adapt measurement and data processing procedures such that multivariate

analyses of teacher education could continue as long as it held promise; in other words, to find out how teacher education could be subjected to multivariate analysis.

The purposes of the study can be restated in slightly more precise fashion as the following questions:

1. Which components of the training programs varied between programs and which tended to be more constant across all programs?

2. To what extent do trainees entering the various programs differ and on what characteristics do they differ the most?

3. Do the teaching behaviors of trainees in the various programs differ and on which behaviors do they differ the most?

4. To what extent are teaching behaviors predictable strictly from characteristics of trainees as they enter the program?

5. Which teaching behaviors, if any, can be found to be associated with and thereby possibly sensitive to training variables, either independent of or in combination with various entry characteristics?

6. Which training variables are associated with the greatest variation in teaching behaviors?

Questions five and six, anticipating a factor analysis of the data, can be stated as which clusters of related variables can be found in which both training variables and teaching variables appear. If such cluster patterns can be found, then interpretations can be made on the basis of those specific variables that do appear within the cluster, interpretations which could have implications for design of training programs and trainee selection for specific programs. Should initial analysis have provided encouragement and should the required complex statistical procedure have been functioning properly, then the data or a promising subset of the data could be reanalyzed to discover the extent to which teaching behaviors are predictable from training variables with entry characteristics partialled out.

SECTION II

PROCEDURES

Teacher Training Programs Studied:

Seven different teacher training programs operating out of Western Washington State College were included in the study. The programs and students in the programs were studied only during the student teaching or practicum phases; the study did not collect any data on program phases preliminary to actual work in public school classrooms.

A brief mention of the publicized features and characteristics of the seven programs is presented here. This information is from publicized descriptions provided prior to this particular study. Program data collected by this particular study are reported in later sections of this report.

Auburn: The teacher training program in Auburn was a year-long program designed to prepare baccalaureate holders from fields other than education for teaching careers. No degrees were offered. The program was for a limited number of students and was financed partly by USOE (EPDA B-2) funds. Trainees were in two elementary school buildings in the Auburn school district and worked mostly in teams using open concept classrooms. A resident college faculty member managed most of the teacher training through seminars and instructional modules in addition to the classroom teaching experience. Interns were located full-time in the school district for the complete school year following a quarter's residence on the college campus taking education courses. The program was in its second year of operation and had begun largely through the initiative of the local teacher's association.

Southeast Center, Seattle: The Southeast Center program (SEEC) was one of the college's clinical programs. Students spent two college quarters with the program in Seattle, with the first quarter called a "laboratory" phase and the second quarter a "practicum." Trainees were undergraduate seniors. The program was operated by resident college faculty. Trainees worked in various Seattle elementary and secondary schools within their Southeast district, some of which were in low-income areas. The laboratory phase of training involved use of instructional modules (more or less self-contained training packages). This was the second year that the program had the two-quarter clinical feature.

Project Turnabout: Project Turnabout, located in one elementary school in the Everett (Washington) School District, was in its first year of operation. The total operation of the elementary school was a cooperative effort between the college and the school district. Five clinical professors, including one in special education, worked with teams of laboratory and practicum

phase undergraduate students. All professional educational course equivalents were taught on site. No intern went into the practicum phase until the last quarter of the school year. The general training sequence from a laboratory to a practicum phase was similar to the Southeast Center. Teacher training placed considerable emphasis on individual consultation. Some instructional modules were used.

Teacher Corps: Western Washington State College's Fifth Cycle teacher corps program was a two-year graduate program leading to the M.Ed. During the year of this study it was located in four smaller, somewhat rural school districts. Trainees were in their second year. Some had dropped out of the M.Ed. sequence and were working toward certification only. During their first year, interns had worked on a variety of grade levels. The program's original intent was to work in the middle school level; however, this year they were working primarily on the elementary level. Another original purpose was to focus on the teaching of rural disadvantaged and Indian children. The program was also attempting to make two other features operational: community involvement in the teacher training program and a means by which trainees could participate in determining their training program on the basis of self-analysis of competency needs. Some Teacher Corps teams had helped set up and maintain classroom team teaching situations. Because of certain controversies during the first year, two teams had shifted to new districts (and team leaders) for the second year. Teacher Corps, Washington, D.C., provided support for this research study.

Project 1070: "Project 1070" was an USOE-funded program designed to train and retrain teachers for early childhood education. The program operated in six school districts. The first year of operation concentrated on training fellows to be teacher trainers for early childhood education. During the year of this study, the second year of the project's operation, other teachers were to be assisted by the fellows and by college faculty to become trained in special features of early childhood education. At the same time these experienced teachers were working with the fellows, undergraduate student teachers, specializing in early childhood, were also assigned to many of the experienced teachers' classrooms. With hesitation, the decision was made to select experienced teachers rather than fellows or student teachers for subjects of the study.

Teacher Researcher Program: The Teacher Researcher Program, initiated and managed primarily by Dr. Vernon Tyler, located in the Whatcom Middle School of Bellingham, Washington, was a program for college juniors. Participation in this program could reduce by half the requirement for student teaching in their senior year as well as meet several requirements for education course credits. Full participation by interns meant location in the school building on a half-day basis throughout the year plus

classes and seminars on teaching on campus in the afternoon. Some students participated for only one or two quarters rather than three. (Unfortunately, this development was not anticipated soon enough in the research study and resulted in a reduction and possible distortion of data collected.) The attempted emphasis in the program was on tutoring, behavioral modification, learning diagnosis, and working in teams as helpers to teachers. This program had no outside support monies.

Conventional: The conventional or brand X teacher training program of the college was for seniors and usually involved one full-day assignment for one quarter in the public schools. Students in the program typically completed most professional education courses on campus prior to student teaching. The student teaching experience was likely to have considerable variation depending on the individual supervisors and classroom setting to which students were assigned. Despite the existence of several training programs at the college during the year of the research study, a large majority of the education students at Western Washington State College were to be trained by the conventional program.

It was believed that these programs, with their likely variations in student composition, setting, and training emphases, could provide a natural laboratory for the study of teacher education, particularly attempts at competency-based teacher education.

Selection of Subjects:

Original plans for random selection of 15 subjects from each of the programs were abandoned for reasons (a) that the time lag occasioned by the need to develop measuring techniques decreased the actual time available for collection of data; (b) the random selection of subjects would have required more travel, more buildings to visit, fewer subjects to be seen during any one day, and consequently less information on fewer students; (c) that even with random sampling, the population to which generalizations could be inferred statistically would be limited to seven teacher training programs of one institution during one year; (d) that for a descriptive-analytic study involving the examination of the interrelationships of several measures, a compelling need for random sampling was not apparent. The difficulty in gathering information on certain individuals for various reasons throughout the year also influenced the selection, substitution, and dropping of some subjects. The means by which subjects were selected and the numbers finally included from each program are indicated below:

(1) Auburn: The number of trainees in the Auburn Program numbered only twelve and all were included.

(2) Southeast Center, Seattle: Students were selected from the Southeast Center program who had their practicums either during

winter or spring quarter. In each quarter, secondary and elementary students were selected on the basis of appropriate field (fields such as physical education, art, and music were not included), and locations in various buildings after discussion with the Director. Five elementary, three middle school, and two high school trainees were selected for winter quarter; four elementary and four high school trainees were selected for spring quarter.

(3) Everett: The Everett students were included in the study only during spring quarters because that was the first quarter in which any student entered the practicum phase. Apart from those in special education training, 15 students were eligible for study and all were included.

(4) Teacher Corps: A decision was made to select Teacher Corps subjects on the basis of site. By selecting three sites out of the possible four, there were potentially 16 subjects. The site not selected involved four interns located in two buildings several miles apart. "Entry measures" were taken on these students during their second year in the program, and one of the post measures was an instrument that had taken three times the previous year. Interns were studied during winter and spring quarters in two of these school districts. Negotiations with the third school district, involving five interns, were so prolonged that they were not included until spring quarter. One student in this district refused to participate leaving a total of 15 subjects.

(5) Project 1070: Eighteen subjects were selected from Project 1070. These subjects were experienced teachers who were working both with Fellows and with student teachers. There was difficulty in deciding who were the appropriate subjects for study in this program, the Fellows, experienced teachers being retrained for early childhood, or student teachers. The rather arbitrary decision to include the experienced teachers added a new element to the whole study, one which permitted certain comparisons of teaching behavior between trainees and experienced teachers, but it also created problems in collecting some data and interpreting some variables. Project 1070 operated in six different school districts. To ease transportation and time limitations, subjects were selected from only three of these districts: Bellingham, Burlington-Edison, and Sedro Woolley.

(6) Teacher Researcher Program: Twenty subjects, or almost all of those in the program, were included from the Whatcom Middle School Teacher-Researcher Program. However, for reasons of inability to sign up for sufficient credit hours, twelve students dropped out of the program before spring quarter and before it was realized that there was an immediate need to complete information-gathering on these particular trainees.

These twelve trainees had one classroom observation and had filled out entry information, and this information was retained for analysis, despite possible bias stemming from a preponderance of first-and-only observational data on the majority of subjects who were to drop out (most would be expected to continue education training during their senior year.) The decision to retain subjects such as these was influenced by the limitations imposed on multivariate analysis by a low number of subjects to number of variables ratio.

(7) Conventional: Students in the Conventional student teaching program were selected both winter and spring quarters partly for reasons of location (clustering in a single building or school district preferred) and variation in grade levels taught and communities. On the secondary level, students in fields such as physical education, art, music, and technology were excluded. School districts included one suburban (Edmonds), one middle-sized (Bellingham), and two partly rural school districts (Mount Baker and Burlington-Edison). Seven elementary and five secondary trainees were selected winter quarter, and three elementary and two secondary were selected and studied during the spring quarter.

All told, there were 114 subjects from the seven training programs on whom sufficient information was gathered for the overall analysis.[1]

The distribution of subjects by program, school district and school building is presented in Table I. Table II presents distribution of subjects by program and time of inclusion in study.

Instrumentation:

Development and selection of the measurement instruments for a project of this scope was a large task, particularly since there was little theoretical focus for the selection of instruments (no doubt there were theoretical assumptions implicitly involved in instrumentation, but they were sufficiently eclectic and lacking in a unified rationale to provide a functional screen for possible instruments).

Selection of variables was based on a conceptual framework which had three broad categories: entry characteristics, program characteristics, and teaching-exit characteristics. Within each category several possible variables were then named. During late summer and fall, 1971,

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[1]Additional data relative to variables of precision teaching, contingency management, and/or behavioral modification were gathered on some subjects in the Teacher-Researcher and Everett Turnabout programs. At the time of this report the data have not been prepared for analysis but the potential of studying the relationships with variables in this study remains.

TABLE I

DISTRIBUTION OF SUBJECTS BY TRAINING PROGRAM AND LOCATION OF FIELD EXPERIENCE

School District / School Building	Training Program						
	Auburn	SEEC	1070	T-Res	T. Corps	Conv.	Turn-about
Anacortes							
Fidalgo Elem.					7		
Auburn							
South Auburn Elem.	9						
Evergreen Elem.	3						
Bellingham							
Birchwood Elem.						2	
Columbia Elem.			2				
C. Cozier Elem.			1				
Marietta Elem.			1				
Lowell Elem.						3	
Roeder Elem.			2				
Roosevelt Elem.			1				
Sunnyland Elem.			1				
Bellingham H.S.						2	
Whatcom Middle S.				20			
Burlington-Edison							
Allen Elem.			2				
Roosevelt Elem.			1			1	
Umbarger Elem.			1				
Westview Elem.			1			1	
High School						1	
Edmonds							
Oak Heights Elem.						3	
College Pl. Middle School						2	
Everett							
Garfield Elem.							15
LaConner							
LaConner Elem.					4		
Mt. Baker							
H.S. (Grade 7-12)					4	2	
Seattle							
Dunlop Elem.		6					
Emerson Elem.		3					
Rainier Beach H.S.		6					
South Shore M.S.		3					
Sedro Woolley							
Big Lake Elem.			1				
Clear Lake Elem.			2				
Mary Purcell Elem.			2				

TABLE II

DISTRIBUTION OF SUBJECTS BY TRAINING PROGRAM AND TIME OF INCLUSION IN STUDY

Time	Training Program						
	Auburn	SEEC	1070	T.Res.	T. Corp.	Conv.	Turn-about
Winter Quarter (Jan-Mar.1972)		10		12		12	
Spring Quarter (Mar-May 1972)		8			4	5	15
Both Quarters (Jan-May 1972)	12		17	8	11		

estimates were made of which variables could be measured, given time and resource limits, so as to provide data from each program suitable for multivariate analysis. This time was also spent on selecting items, constructing paper and pencil instruments, and practicing and eclectic observational procedure. Frequently, a decision was made on a variable or the instrument for its measurement on the basis estimated feasibility of collecting data on all subjects. Estimates of feasibility were based on staff time, resource limits, and tolerance of subjects. Decisions on this basis were felt necessary despite the belief that the relationship between ease of gathering information and importance of the information is strong, linear, and negative. Also, there was the limitation that a variable important to one program could not be included unless the variable could be measured in all programs (for example, ratings of the quality of baseline data collected could be important to a training program stressing precision teaching, but this rating of quality could not be meaningfully applied where baseline data were not kept). Despite desires to continue refining instruments, most modifications had to be complete by the end of fall quarter, 1971, in order that data collection could begin. Little modification of the instruments occurred after that time save for occasional questions on how to resolve matters coming from classroom observation and development of an interview schedule.

Questions of logistic limits forced exclusion of most pupil learning and attitudinal variables. This was believed quite unfortunate, but it simply did not seem possible to gather data on these variables save for what could be inferred from certain verbal interactions with the trainees and estimates of attention to task behavior. The consoling thought was that it was unlikely that the trainees would by themselves, considering their contact time with pupils and the competing influence of other factors, have sufficient impact on the students to create a learning difference discernable by paper and pencil or interview instruments.

Information was gathered by six procedures: (1) a paper and pencil instrument, usually filled out by the subject when he started the program, which included items of personal background information and various attitude or opinion scales; (2) a paper and pencil opinion instrument filled out by the student toward his completion of the program; (3) classroom observation by project staff members; (4) ratings by building principals of individual interns; (5) interviews with interns and cooperating teachers asking for certain information about the classroom setting and its pupil composition; and (6) interviews with the training program directors and certain features of the training program and the personnel involved.

The major variables of the study are listed in this section together with some indication of the measurement procedures and the code used for data processing. Included are some variables originally proposed for the study but later dropped for one reason or another. A more complete listing of variables and measurement procedures is given in Appendix A. Code numbers with a zero after the decimal usually indicate rather generalized variables; measurable indicators of general variables, most of which are listed only in Appendix A, usually are coded with numerals other than zero after the decimal. The code system was set up in the hope that it could be retained and expanded for future studies.

(Entry Characteristics)

E1.0 Scholastic aptitude. This variable was dropped from the study after it was found that data from no common measure was available on a large majority of subjects and it was decided that trying to have all subjects take a common measure was pressing their tolerance and our luck a little too much.

E2.0 Sex.

E3.0 Scholastic achievement. Measured by self-reported grade point averages.

E4.0 Undergraduate vs. graduate status.

E5.0 Previous experience with children, divided into four types: Babysitting (E5.1), church and Sunday school (E5.2), Recreation and camp programs (E5.3), therapeutic and other types of training work with children (E5.4).

E6.0 Social class background. Two indicators used: prestige rating of Father's occupation (E6.1) and highest level of Mother's formal education (E6.2).

E7.0 Attitude toward training program. Also listed as a program variable.

E8.0 Tolerance of Ambiguity. Attitude scale on questionnaire.

E9.0 Activist orientation. Attitude scale on questionnaire.

E10.0 Social Responsibility. Attitude scale on questionnaire.

E11.0 Dogmatism. Attitude scale on questionnaire.

E12.0-E15.0 Clusters of attitude items formed by regrouping items from scales pertaining to E8.0 to E11.0. See Appendix A2

E16.0 Participation in campus activities. Ratings of reported participation in several categories, such as E16.91, student government activity ratings.

E17.0 Age.

(Program and Setting Characteristics)

P1.0 Age and grade level of children taught by trainee.

P2.0 Minority group and economically disadvantaged children. Portions of classes taught by trainee composed of children of selected minority groups, for example Mexican-Americans (P2.13), and economically disadvantaged families (P.2.25).

P3.0 Rural vs. urban setting.

P4.0 Instructional modules (training packages), use of for teacher training.

P5.0 Field-Centeredness. Scored as number of credits earned (P5.1) or quarters spent (P5.2) during off-campus field component of teacher training.

P6.0 Reported local control of programs by teachers' association (P6.1) or parents' group (P6.2).

P7.0 Teaching responsibility given interns. Data not gathered on this variable.

P8.0 Microteaching. Number of episodes during training.

P9.0 Philosophy of project staff. Data not gathered on this variable.

P11.0 College supervision scored according to number of observations and conferences. (No P10.0 variable--mistake in coding).

P12.0 Trainee choice over content and objectives of program, self-perceived.

P13.0 Experience of cooperating teacher.

P14.0 Attitudes of school personnel toward professional education.

P15.0 Individualization of teacher training.

P16.0 Intellectual challenge of program, perceived by trainee.

P17.0 Rated effectiveness of cooperating teachers.

P18.0 Conformity of program to ComField model laboratory--practicum sequence. No data collected on this variable.

E19.0 Trainee attitude toward training program (P19.17, same as E7.1).

(Teaching and Exit Characteristics)

Most teaching characteristics were based on averages obtained from three classroom observations on a subject.[1]

T1.0 Building principal's rating of trainee.

T2.0 Verbal interaction patterns with classifications of verbal interaction based on modification from Flanders' interaction analysis.[2] Included use of "indirect" or "extended indirect" (six seconds or longer) influence (T2.1 and T2.2), "direct" and "extended direct" influence (T2.3 and T2.4), occurrence of pupil-initiated comments (T2.5 and T2.6), and extended information presentation (T2.7) for varying kinds of classroom organization as identified under T3.0.

T3.0 Use of whole class vs. individual or small group classroom organization.

T4.0 Cognitive level of expected classroom work, classification based primarily on general categories from a cognitive taxonomy of educational objectives,[3] including usage of above knowledge level of questions (T4.1), above comprehension level questions (T4.2), question usage vs. no questions (T4.3), and substantive questions vs. procedural matters (T4.4).

T5.0 Pupil attention to task, as rated by observers.

T6.0 Individualization of instruction as rated by observers.

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[1] It was suspected that three observations would not provide very reliable scores for a single individual but that it might be sufficiently reliable for examination of group trends.

[2] Flanders, Ned A., et al. Teacher Influence, Pupil Attitudes, and Achievement. USOE Cooperative Research Monograph No. 12, OE-25040. Washington, D.C.: U. S. Government Printing Office, 1965.

[3] Bloom, B. S., et al. Taxonomy of Educational Objectives Handbook I: Cognitive Domain. New York: David McKay Co., Inc., 1956.

T7.0 Adjective pair ratings of classroom and teacher trainee by observers, including dull-stimulating (T7.2), disorganized-systematic (T7.3), and harsh-kind (T7.4).

T8.0 Variety of teaching methods. So far unobtained ratings of observer comments.

T9.0 Variety of materials. So far unobtained ratings of teaching materials used.

T10.0 Commitment to teaching. Two-item attitude scale.

T11.0 Proclivity toward child-centered, problem-solving teaching behavior. Score on Teaching Situation Reaction Test.

Data Processing and Analysis:

Preparation of Data for Analysis: The amount of data collected per subject was large. Counting variations of general variables, such as individualization of training as perceived both by project directors and by trainees, the number of variables for which data were processed was well in excess of 100. Several of the variables offered unique problems that had to be solved in turn before data were made amenable to multivariate analysis.

To be suitable for analysis, data on any variable had to be (a) scaled, even if only dichotomously, (b) present on all subjects, and (c) averaged per subject when there were more than one measurement on a subject. In some cases these steps had to be preceded by somewhat arbitrary decisions about the number of subvariables or facets of a general variable to be involved in a set of data.

An example may illustrate the steps a set of data went through prior to analysis. "Previous experience with children" was originally proposed as an entry variable. The initial questionnaire was chosen as a means of gathering data on this variable. With difficulty in anticipating the nature of what subjects might report, the item devised on the questionnaire was somewhat open-ended, asking for type of activity and amount of time with each and providing examples ("babysitting: 10 hours/week for ten years"). Upon examination of the responses to this item, the diversity of reported experiences made it difficult to conceive of "previous experience with children" as a very homogeneous variable. Consequently, the variable was subdivided into four, according to how the responses seemed to cluster: baby-sitting, church group and Sunday School, recreation programs and camp counseling type experience, and other (which included a substantial proportion in therapeutic training, hospital, and tutoring type experiences). Then it was decided to measure each on the basis of reported amount of time. Total number of hours for each type of experience were computed or estimated (depending on how complete the response was) for each subject and placed on a scale. Mostly because a large number of subjects reported no experience in any single category, a rather intuitive decision was made to group the total number of hours according to a four or five point rating scale. With little certainty

but with no better alternative apparent, it was decided to count blanks as zero values rather than non-responses. The ratings were then made and recorded on the questionnaire form. Then the ratings were transferred to punchcards along with other data from the questionnaire. A computer program was written to provide summary descriptive statistics for these and other variables, both overall and for each training program. The program had to detect missing data for any variable and discriminate missing data from zero values of collected data--and actual zero values took different forms for different variables (in the case of child experience variables, the lowest rating given, for no experience, was a "1" so that a zero or blank would indicate no data on that variable for that subject). The experience ratings were punched on new cards by a computer program which condensed the number of variables most likely to be analyzed into a format more suitable for reading by the cardreader. In so doing, missing data values were given the special identification value of -.01. The summary statistics program was then applied and reapplied to the new cards, with reapplications interspersed with considerable debugging. Cards for individuals for whom no data were collected on previous experience with children (some subjects did not return an entry questionnaire) were pulled from the stack and new cards punched, this time with group averages (obtained from the printout of the summary statistics program) substituted for missing data. This step required identification of each subject ID number on the card as belonging to a particular training program. Then, finally, the data on previous experience was deemed ready for multivariate analysis--except that with a higher variables-to-subject ratio, a decision had to be made about which of the four ratings to exclude from an initial analysis.

The data on the teaching variables went through some of the same steps, but there were differences. First of all, the data on the observation recording forms had to be compiled on a summary form by the observer before keypunching. This step involved such things as counting the number of time segments during which a type of verbal statement, such as praise, occurred while the class was organized according to small groups and then placing the number in the appropriate blank. After keypunching the data from each summary sheet, the values had to be averaged for each subject (usually but not always there were three summary sheets per subject) so that there was a single score on a variable per subject. This required writing a separate computer program that generated a new set of cards containing the average scores. Substituting missing data usually was not a problem for teaching variables because no subject was included unless he was observed at least once. The exception to this was for certain ratios of time segments where the denominator was number of time segments during which the class was organized according to a specific pattern, such as whole group; appropriate summarization of these ratios had to distinguish, for instance, a 0/15 from a % ratio.

When data were finally prepared for initial multivariate analysis, there were sixteen computer punchcards of data per subject. The cards which had been assembled by card number for the summary statistics were then reassembled in order by subject.

The steps taken to prepare data for analysis have been described in

some detail here to provide the reader with some idea of the number of phases where error could have crept in through mistakes in preparation. Checks were made on accuracy of each step taken for certain variables for certain groups of subjects, but an exhaustive check of all steps on all variables was not possible.

Data Analysis: The first step in data analysis, taken along with data preparation, was a compilation of descriptive statistics. The descriptive statistics included mean, standard deviation, number of scores, and a twenty-interval frequency distribution for each variable. The descriptive statistics were computed for all 115 subjects as a total group and separated for each group of subjects within a single training program.[1]

In addition to the other descriptive statistics, a correlation ratio (η^2) was computed with a desk calculator for most of the variables with subjects grouped according to training programs. The correlation ratio in this case was a descriptive device indicating how much of the variation of a score could be associated with the training programs.

The data were then analyzed by means of factor analysis. Factor analysis was used to detect whatever clusters or patterns of interrelationship among all the variables did occur for the purpose of deriving plausible explanatory hypotheses relevant to teacher training and behavior. In particular, factors were examined for the co-presence of training program and teaching variables in order to find clues about which behaviors were sensitive to training and which program variables they were sensitive to. Such clues, even if highly tentative, could probably provide a better basis for program planning than has existed (presumably, a well-planned training program would not intentionally attempt to influence behavior not subject to influence). For example; an identified factor might include these variables:

Age level of children
Sex of trainee
Pupil attention during class
Previous experience with children
Rural vs. urban setting

In this factor, it would be noted that no training or other teaching variable occurred; pupil attention would appear to be a function of entry and classroom setting characteristics only. On the other hand, an identified factor might be loaded with the vollowing variables:

Individualization of training of trainees
Dogmatism of trainees
Individualization in classrooms taught by trainee
Trainee commitment to teaching
Number of instructional modules completed by trainee.

[1] One subject on which little information was gathered was later dropped to make a total of 114 for multivariate analysis.

In this case, the factor would imply that, if individualized teaching is a goal of a training program, the training program itself had better serve as a model for individualization and that it might do so through the use of instructional modules.

Given any cluster of variables, several interpretations might be plausible. An interpretation might have implications for program planning and it might have implication for further analysis or new research. Judging the relative plausibility of rival interpretations would likely be on the basis of rational judgment extraneous to anything in this project--and could possibly be a rather worthless enterprise--but where rival interpretations appear important for one reason or another, some direction is given about where to apply additional multivariate analysis if such analysis holds promise for arbitrating plausibility.

A principal component factor analysis was applied to the data. Fifty-four variables were chosen for the first factor analysis mostly on the basis of estimated relative importance and partly on apparent suitability for multivariate analysis according to the summary statistics. Deciding on the maximum number of variables that could be profitably included in a factor analysis with 114 subjects was of some concern because of the fairly high variables to subject ratio. It was determined through familiarity with the variable, guesswork, and trial-and-error through a sequence of analyses. Given a practical upper limit of less than, say, sixty, all possible combinations and permutations from the total set of variables was a practical impossibility.

Before the factor analyses could be run successfully, considerable additional debugging had to be done, mostly concerning mechanical problems of card order and card-reading (a 1/64" offset error on punchcards caused by the keypunch machine created problems and delays, for instance, before it was rectified). Summary statistics provided by the factor analysis served as a basis for a partial check on accuracy through comparison with previously-run summary statistics.

A factor analysis was also performed on twenty-five variables for a subgroup of subjects, those 61 who completed and returned the second questionnaire. The reduced factor analysis was necessary to utilize what information was included on the second questionnaire after it was determined that estimation of missing data for the remaining 53 subjects would be carrying things a bit too far.

After the factor analyses, discriminant analysis appeared to be the best alternative and was performed on data on selected variables. The purpose for the discriminant analysis was somewhat different than that for the factor analyses. The discriminant analysis was designed to reveal the greatest differences among training programs concerning the entry characteristics of the trainees and the teaching characteristics of the trainees. Should the data on the training variables be the weakest part of the data, as was suggested, revealed differences in teaching characteristics could provide a framework for further ex post facto examination of the training programs and associated characteristics not detected by this study.

In addition to factor and discriminant analyses, canonical correlations were obtained between sets of teaching variables and sets of entry and of program variables. The main reason for the canonical analysis was to assess the extent to which selected teaching variables were associated with and predictable from entry or program characteristics.

Time and Sequence

The first part of the project, from September through December 19, 1971, was devoted to the selection and modification of measures, consideration of which variables were to be included, discussion with program directors and other personnel, and attempts to identify subjects. By January, 1972, data collection had to begin whether or not the staff was ready.

During the academic winter quarter, January through mid-March, 1972, entry information was gathered on most subjects, and slightly less than half of the observations were made. Data collection efforts increased during the spring quarter of 1972 (producing another limitation, namely, the possible lack of generalizability of observational data to other times of the year or to trainees whose field experience occurred earlier in the school year). All subjects in Project Turnabout were observed only during spring quarter. Subjects in the Auburn program, Project 1070, the Teacher-Researcher program, and two Teacher Corps teams were observed over two quarters, January through May, 1972. Winter quarter and spring quarter subjects in the Southeast Center and the conventional program were different.

With limitations of personnel, data processing could not begin in earnest until the summer of 1972. All activities to collect data, including tracking down persons who did not return certain forms (only partly successful) took most of the time that otherwise could have been devoted to preparation for data processing.

Data processing proceeded slowly through the summer and fall, 1972, as the obstacles created by the large number of variables, the diversity of data forms, and the perverse intractability of the computer became more apparent. Data from observations had to be put on a summary form for each observation, then keypunched, then averaged across observations (requiring a special computer program) before summary statistics could be obtained. Summary statistics had to be obtained before decisions about what to include in multivariate analyses. Missing data gaps also had to be filled in with group averages prior to analysis. Information about such things as prior campus activities had to be rated on a scale, and a scale for several such variables had to be devised prior to rating. Multivariate analysis began in November, 1972, even before all summary statistics were obtained and before averages for all missing data were substituted (concerning variables not included in initial analysis). By January 1, 1973, project work had included 261 machine entries at the WWSC computer center and had used six and one-half hours of IBM 360/40 or 7090 computer time.

SECTION III

LIMITATIONS AND PROBLEMS OF THE STUDY

With the number of variables studied, the number of people and sites to work with, the diversity of the field setting, the time constraints, and the newness of its design and the instruments, it was expected that there would be numerous obstacles in the study. The obstacles created limitations. Several limitations as perceived by the investigators are described in this section. This listing is probably not exhaustive, for an accounting of all the problems encountered would have taken more time and effort than data collection itself. Those limitations and problems listed here should nevertheless give the reader some flavor of what was encountered and enable him to better understand the qualifications to be placed on the findings.

Development of Instruments:

The time requirements of the project dictated that all instruments had to be selected or developed between September and December, 1971, concurrently with orientation of program directors and other planning. With no integrated and restricted theoretical base and with a desire to include as wide a range of variables as possible, the project utilized a large number of measures. Guesses were made about how many forms the typical subject would wish to or would agree to complete. Estimates were also made about the types of information that could legitimately be scaled for multivariate analysis. Forms were modified by a trial-and-error procedure, but the time for trial and the number of trial subjects seemed all too limited. Responses to many items could not be cross-checked for reliability. A partial attempt to correct this deficiency was by having more than one item or measure for a particular variable (such as having both the subject and the college project director report independently the number of microteaching episodes).

The classroom observation was also an eclectic procedure that attempted to gather a maximum of diverse information within a short time period. While some time was devoted to developing consistency and observer reliability, the time available for this work was not as much as deemed desirable.[1]

For some variables there was a lack of any obvious, clear-cut measurement criterion. Estimation of social class background of subjects, for instance, required decisions among different and imperfect indicators.

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[1] An interesting argument that time spent for developing high inter-observer reliability can easily be excessive and even misleading has been presented by Donald M. Medley and Daniel P. Norton, The Concept of Reliability as It applies to Behavior Records, paper presented to the 1971 meeting of the American Psychological Association, Washington, D.C.

There also seemed to be various and somewhat inconsistent criteria used in different school systems to estimate the number of children from disadvantaged families in classrooms (The heterogenity of the concept itself caused problems; should a child from a rural welfare family and a child of an unemployed Boeing engineer be classified together?).

The logistic feasibility criterion frequently seemed too oppressive. Measures of some variables deemed quite important had to be discarded. These included academic aptitude of interns and pupil goal perception in the classroom. Also, variables important for some training programs, such as the management of contingencies or the keeping of baseline information in programs emphasizing precision teaching, could not be included because they could not be meaningfully measured in another program, with the result that these variables were not included (the fact that baseline information was not kept could be "measured," but the degree or quality of baseline information kept would have been a variable meaningful to only one of the programs).

Certain other items crept in for God knows what reason, and the resultant unanalyzed data can still be found somewhere on punchcards or forms. (For example, region of birth of subject.)

Subject Selection, Mortality and Cooperation Problems:

Despite the original plans, subjects were by and large not randomly selected from programs for reasons mentioned previously. Reasons were logistical problems of visiting geographically-dispersed subjects within a limited time period, the small number of trainees in some programs, and the lack of a compelling reason to sample subjects randomly for a descriptive-analytic (as opposed to an experimental or sample survey) study. Consequently, no inferences can be made to other subjects on a statistical basis. Any generalization would have to be an intuitive estimate that the analysis of certain interrelationships found among subjects in some programs would also likely be present with roughly comparable subjects in similar programs. The cooperation of subjects was much better than feared, but there nevertheless were instances where some subjects did not wish to fill out forms or have their classes observed. This involved the loss of no more than one or two subjects per program, but the loss could not in any conceivable way be considered random. A more common problem was the fact that we were not able to collect all information on a subject. A subject might, for instance, provide information on all measures except the final questionnaire. A large number of subjects had missing values for at least some variables. (See Appendix B.) Group averages were substituted for missing data (there seemed no alternative for multivariate analysis), based on the dubious assumption that there was no systematic deviation of missing from collected information within a program. There was also the possibility that subjects filled out some forms and gave some answers in some frivolous or distorted way. There was no way that this was assessed, but the subjective impressions of the investigators were that the reactions of most subjects were cooperative and serious.

Problems of Reliability, Standardization, and Measurement Conditions:

The reliability of the measurement procedures, including the stability of observational data, was not empirically assessed. It was not known how much the random errors of measurement were compensated for by having 114 subjects in the study. It was known that the number of subjects had to exceed the number of variables for any multivariate analysis to be performed. It was also known that a desirable subjects to variables ratio and a sufficient number of subjects to insure adequate compensation for random error was beyond realization for this study. The study simply included as many subjects as it could in the hope that real patterns of relationships could be detected despite whatever unreliability existed.

For some variables, such as grade level of children taught, measurement was straightforward and not plausibly subject to error. For others, errors were more likely. Academic performance was an example. It was not possible to secure and examine grade records or transcripts for all subjects in all programs (if all subjects had been undergraduates, such examination could have been done); the less satisfactory method of asking subjects to report their undergraduate grade point average was employed, and the accuracy of their self-report was not known. Most subjects were observed in the classroom three times, and observational data for a person were averaged across observations. The judgment that, while three observations were not a sufficient number for a decently reliable score on an individual, they would provide sufficiently reliable data for groups of trainees was based on little more than intuition.

To the extent that measurement errors were random, the consequence would have been simply a lessened chance of detecting true relationships and calling them statistically significant. However, the likelihood of non-systematic errors, confounded with other variables, remained. To take the example of grade point average again, reported GPAs, even if accurately reported, were from different institutions and different major fields with no guarantee of equivalence among them and no guarantee that the differences were unconfounded with other variables (graduate trainees with GPAs based on undergraduate work at other institutions were concentrated in two training programs).

Varying classroom organizational patterns presented one of the more pernicious problems. The assumption behind the development of the measurement procedure employed was that it could be applied to any classroom observed. However, the problems imposed by individualized patterns of instruction were underestimated. Measuring the cognitive level of questions asked in a whole-group situation was one thing. Measuring the level of questions to which pupils were responding when working on different things in small groups or as individuals was something else. In part, their difference was monitored by recording the type of classroom arrangement, but the resultant data were not easily amenable to analysis; some teachers had only data from individualized setups and some only from whole-class arrangements, and these teachers could not be compared on either one of the conditions. Interpretations of the results need keep the differing patterns of classroom organization in mind. To some

extent at least the correlation produced by the analyses would reveal the problems of such discrepancies, but potential devious interrelationships exceed that which could be detected.

Working definitions of economically disadvantaged children also tended to vary between schools and persons asked, and it was not possible to obtain this information from the person in the same position, such as principal, in all locations. Furthermore, it was not self-evident that economic disadvantage, however defined, entailed the same things in different locations; economic disadvantage may have implied one set of things for a Seattle family and another set of things for a rural family near Sedro Woolley, Washington.

Conditions for gathering information were not standard--again by necessity and not by choice. In some cases, as for the initial questionnaire for subjects in the Everett Project Turnabout, a specific time and location was found to complete the questionnaire. In other programs, questionnaires had to be left with the trainees or program directors to be returned (sometimes) by mail. Even where specific times and locations were found for a group of subjects, the times and locations were not the same between groups--Project 1070 subjects completed theirs during evening meetings for instance. Data from interviews, such as number of minority group children, had to be asked of different persons--the trainee in one school, the principal in another, and the cooperating teacher in a third. And, different project staff members asked the questions at different locations (No known bias entered into who asked the questions where, but unknown bias was not protected against by a thorough counterbalancing plan because of staff scheduling difficulties).

The factors of non-standard measurement conditions and other sources of possible systematic error make interpretations of results more tentative, particularly for between-group comparisons. Different interpretations of the same pattern of relationship are conceivable, and some are based on considerations of systematic measurement error.

Problems of Scheduling and Communication:

A complete chronicle of the scheduling and communications problems could make a separate monograph. Beginning January, 1972, the limited part-time staff of the project (three half-time assistants collected data) had to devote their main energies to collecting information, leaving little time for schedule coordination and adjustment, not to mention orientation sessions in the field. As indicated previously, this study involved not only seven training programs but also 29 school buildings (each of which had a different principal), in ten school districts spread out over an area 120 miles long. Orientation discussions with some key persons were separated widely enough in time so that some agreed upon procedures were forgotten, both by the staff and persons in the schools. Each school system had different procedural arrangements for getting into the buildings and making observations and interviews. Teachers' time schedules were subject to change, and if a message about a change was given to the project office (several people were very good about this), it sometimes was impossible to relay the message to the

staff member who was to visit. If the message was received by the staff member it often was too late to arrange a visit elsewhere. In addition, one staff member lived fifty miles away, another had no home phone, and the project office's telephone could be manned with a receptionist no more than half the time.

Some examples: In one school district, after classes had been visited somewhat unexpectedly by persons from a completely different project (and unclarity about whom to contact was revealed), the Superintendent ruled that no outside personnel could come into the school until after a forthcoming levy election. After that it still was not clear with and through whom the clearances had to be obtained. In another program, questionnaires were first of all administered to the wrong group of interns, requiring a separate trip months later to readminister the test. In the Teacher-Researcher Whatcom Middle School program, the operating assumption was that students were enrolled for the full year. It was too late before it was realized that a number of students were dropping the program after two quarters because of the lack of additional credit hours that could be earned through the program. (Most of those juniors were to resume education training their next school year). As a result, approximately half of the subjects were observed only once and had no information gathered on them by means of the interview. In another school district which had a Teacher Corps team, negotiations with the administration about entering their schools dragged on throughout the full winter quarter, and data collection did not begin until the spring quarter. Certain subjects and building principals who were associated with the full year Project 1070 program forgot about the procedures from one quarter to the next and going through preliminary channels had to be repeated. Because of limits imposed by traveling and schooling, the idea of true time sampling of teacher behavior was pretty much discarded. Certain classroom activities such as recess, play periods, test-giving, teaching by special teachers, were ruled out for observation, and there was a tendency to take observations during the time when the teacher was "doing some teaching," even if this were not entirely typical of his activities during the school day.

Problems with Appropriateness of Observational Procedures:

Certain types of classroom organization (oftentimes initiated by the training program itself) caused certain problems in observing; in particular, the organization of classrooms around learning stations or some open concept idea was a problem. Standard classroom observational techniques did not seem easily adaptable to these different patterns of organization. For instance, it was not always easy to identify which students were the responsibility of the trainee when the trainee was working with the team. This affected such things as pupil attention scan. If, for instance, an intern were working with a sub-group of six students out of a group of twenty, the other fourteen being involved with independent study or perhaps with another teacher and not in the physical vicinity, how was the pupil attention scan to be administered? Only with the six students or with others? Additionally, should the classroom organization have been regarded as small group, independent study, or whole class? The problem of cognitive level of work expected for differing class organization

was mentioned previously. The count of cognitive level of questions was ordinarily based on time segments, but when pupils were working on different things in different locations there was no guarantee that they were all supposed to respond at the same cognitive level. It was proposed in this situation to substitute a pupil-ratio for a time ratio, but this was not consistently or adequately carried out nor could the two be considered comparable if it had been carried out. Eventually, estimates were based on time segments for all situations, often based on what the teacher was saying to an individual or small group, in the hope that not too much diversity was missed.

Data Processing Problems:

Various places where error could have crept into the data during the several stages of data processing have been described in the previous section.

Despite all problems, data collection and analysis were accomplished.

SECTION IV

RESULTS

Descriptive Statistics:

Means and standard deviations were computed for each variable for each group and for all groups combined. These computations were necessarily performed prior to the multivariate analyses in order that missing data on subjects could be estimated on the basis of group means. In addition to means and standard deviations, a correlation ratio (η^2) was computed for most variables as a device for describing how much of the variation of scores on a variable could be associated with differences among training programs.

The descriptive statistics as well as a 62-variable correlation matrix are listed in Appendix B. The sheer number of statistics prevents an exhaustive discussion here, and an attempt to do so would fail to recognize a major purpose of multivariate analysis, namely, to make sense of a large body of data on several variables. Notwithstanding, some mention of individual statistics on some variables can be made here because of their interest independent of subsequent analysis.

Entry Characteristics: Few statistics on entry variables were of particular note in and of themselves, and few differences among programs were found that were not obvious (such as graduate standing). Reported general grade point averages hovered around the 3.00 level, and program differences accounted for only 7.5% of the variance. Program differences accounted for more of the variation in reported grade point averages in special fields, partly because the special field GPA's for Teacher Corps were roughly the same as for the general GPA, whereas the special field GPA in the other programs were greater than the general GPA.

With no normative reference point for the entry attitude scales, the reported figures have little meaning apart from between-group comparisons. Program differences accounted for 24.3% of the variance in the intolerance of ambiguity scale, 17.8% of the dogmatism scale variance, 17.1% of the related cluster score variance for the first of four item clusters (as listed briefly in Section II, four item cluster scores were derived from a cluster analysis of the items of all opinion scales, such as dogmatism, on the entry questionnaire; explanation is in Appendix A2). On the intolerance of ambiguity scale, Teacher Corps scored low (showing high tolerance), while Project Turnabout, Conventional, and Project 1070 groups scored high. Little in the way of association with program differences occurred for the other attitude scales.

Program and Training Variables: For program and setting characteristics there were both obvious and not-so-obvious results. The average grade level in which the trainees taught was a little over the fourth, with Project 1070, obviously, and Project Turnabout (Everett) trainees working in the lower grades; and those programs which included secondary level trainees, Southeast Center and Conventional, having the highest averages.

Nine percent of the pupils in classes taught by trainees were reported to be of one of three minority groups--Black, Mexican-American, and American Indian--with percentages ranging from one at Auburn to eighteen in Southeast Seattle.

The accuracy of the data on those training variables included was somewhat suspect, possibly reflecting the variations in the way certain questions were posed to different respondents. The correlation between the number of instructional modules used as reported by the trainees and by the program directors was $r = .17$, with a big difference occurring in one program. Trainees reported studying an average of 3.6 modules with two programs, Auburn and Turnabout, reporting the greatest usage.

The reporting of micro-teaching episodes was complicated by the problem of trying to define micro-teaching in a clear and acceptable way. With a narrow definition, very few episodes were reported in any program. With a broader definition, recollections of what constituted micro-teaching probably varied. Trainees reported experiencing an average of three episodes using the broader definition with the Southeast Center trainees reporting the most (6.65), another clinical program; Turnabout, second (3.24), and the Conventional program third (3.24). In the conventional programs, trainees generally referred to episodes in methods courses prior to student teaching.

As with micro-teaching, reports of supervisors' observations coupled with conferences were plagued by varying recollections perhaps partly due to varying definitions of a supervisory observation. Moreover, the meaning of this variable was complicated by the likely tendency in some or all programs to increase observations for trainees having trouble and also by the fact that supervisory visits were not a part of the program for the experienced teacher subjects in Project 1070.

When asked about how much say trainees had over their own program, few sharp differences among programs occurred when separate items of the six item scale were summed. This was an explicit feature of Teacher Corps but not of other programs. The average response to an item was a moderate-to-high rating of 3.96 out of 5. Moderate program differences occurred for separate items on this scale such as P12.15, influence over trainee evaluation ($\eta^2 = .136$).

Trainees had differing perceptions about how much their own program was individualized, with Turnabout and Auburn trainees reporting the most and trainees in the conventional program the least individualization.

Teaching and Exit Characteristics: Trainees were observed as having their classes organized so that pupils worked in small groups 38% of the time and as individuals (this included seatwork) 24% of the time, leaving 38% of the time for whole class arrangements. Program differences accounted for no more than 20% of the variance of these variables (T 3.1, T 3.2, T 3.3 and T 3.4). Teacher Corps interns most frequently used small group class organization, with the Teacher-Researchers second. In the Teacher-Researcher program, subjects, who were juniors, were probably viewed primarily as teacher assistants rather than as student teachers.

The recorded use of indirect verbal influence, according to Flanders' categorization (praise, acceptance and use of pupils' ideas and feelings), occurred in 20% of the total number of 30-second time segments observed. Extended verbal indirect influence, that which lasted six or more seconds consecutively, occurred in only 2% of the observed time segments. Verbal direct influence, teacher statements that amounted to the giving of directions or criticisms, occurred in 36% of the time segments and extended direct influence in 8%. Between-program variation accounted for 13% of the variance of direct influence and practically none of the extended direct influence. Overall, pupils initiated or expressed free comments (a "9" in Flanders' categorization) during 33% of the time segments, and extended pupil comments in 4%. The teachers' verbal provision of information for six or more consecutive seconds occurred in no more than 13% of the recorded time segments.

When reviewing these results, particularly for programs in which a great deal of small group organization occurred, it is well to keep in mind that in some classes the observers had difficulty keeping within earshot of the teacher as he was conferring with individual or small groups of students.

According to the recording of cognitive level of questions asked of pupils--those that the teacher asked orally or (measured quite imperfectly) those confronting the pupil through written materials--questions above the knowledge level[1] were recorded during 22% of the total time segments, and 52% of those time segments during which any questions were asked. Questions above the comprehension level were asked 6% of the time overall and during 13% of the time segments any question was asked. Questions were not always part of a time segment; substantive questions were recorded only during 37% of the time segments. No questions or procedural questions were recorded for 62% of the segments. It was thought, informally, that the individualized and small group setups increased the amount of time with procedural questions, but this was not borne out by any correlation coefficient greater than .32 (for the variables on organization and question ratios coded T3.4 and T4.43; other variables involved in this finding were T6.1 and T3.1, correlated individually with T4.41 and T4.43). Program differences accounted for no more than 16% of the variance of any of the classroom organization or questioning variables.

Adjective pair ratings tended to be moderately positive (toward interesting, systematic, or kind rather than dull, disorganized or harsh) with averages between 4.2 and 4.5 on a one-to-seven scale. With one exception the conventional program had the lowest average rating on all three adjective pairs, but the differences seemed slight. One adjective pair, that coded T7.1, was almost impossible to interpret because of misunderstanding about its inclusion and its scale.

Concerning ratings of "individualization" (a concept for which

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[1] As classified by the cognitive taxonomy of Bloom et al, op. cit.

common agreement on a definition was extremely difficult to find), Teacher Corps had the highest average rating (2.74 on a five-point scale), but four other programs were close with ratings above 2.4.

The completion and return of paper and pencil instruments at the end of training was limited to 61 subjects. Among programs little difference was found on the Teaching Situation Reaction Test (η^2 = .106); attitude toward the training program (η^2 = .099) or for intellectual challenge (η^2 = .138) variables. Somewhat greater, marginally significant differences were found for commitment to teaching (η^2 = .176) with the Project 1070 experienced teachers scoring highest and those few teaching respondents from the Conventional and Teacher Corps programs scoring comparatively but not extremely lowest. Generally speaking, attitudes toward training programs seemed high (37.5 out of a possible 42), but this could have been altered if all trainees had responded. Reported commitment to teaching also was generally high with a 12.85 average out of a possible 14. (On the entry questionnaire, completed by 100 subjects, the attitude toward the training program average was 28.46--comparison with the other attitude figure hardly plausible because of the confounding of time with different numbers of respondents).

Factor Analysis Results:

First Factor Analysis (54 variables, 104 subjects): Fifty-four variables were selected for the first factor analysis. The fifty-four variables included 16 on entry characteristics; 19 on program and setting characteristics; and 19 on teaching and exit characteristics. Selection of the variables was based on subjective judgments of importance, relevance and accuracy for all programs; and numbers of subjects on whom data had been collected.

The factor analysis was a principal components procedure followed by a varimax rotation.[1] With the criterion selected for factor retention for rotation as an eigenvalue greater than 1.0, eighteen different factors emerged which together accounted for 73% of the total variance.[2] The squared multiple correlation for each individual variable (indicating proportion of that variable's variance accounted for by all other variables) ranged from .398 to .896. Communalities (proportion of a variable's variance accounted for by all the factors) ranged from .559 to .897.

No single factor accounted for much of the variance. In fact, the greatest amount of variance accounted for by any factor was only 5.8%.

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[1] Procedure as presented in William H. Cooley and Paul R. Lohnes, Multivariate Data Analysis, New York: John Wiley & Sons, Inc., 1971.

[2] Criterion specified by Kaiser. Kaiser, H. F. "The Application of electronic computers to factor analysis." Ed. & Psych. Measurement. 1960, 20, 141-151.

What was indicated were several small clusters of moderately intercorrelated variables with few surprises. The sought-for coincidence of teaching variables with program and/or entry variables was generally not found. The correlation matrix generated for the factor analysis did not (on visual inspection) promise more, for the correlation coefficients seemed consistently to be quite low (a 62 variable correlation matrix including most of the same variables is included in Appendix B).

The variables with moderately high loadings on the first ten factors are listed below, in some instances with suggested explanations for the factors. The explanations are of course merely suggestive; other explanations, including chance covariation, may be equally valid. Variables with loadings greater than .500 are listed on the left; variables with loadings between .300 and .500 on the right.

First Factor: (5.8% of total variance)

P1.1 grade level	(-.611)	P8.12 Directors' reported use of modules (.409)
T2.36 Verbal direct influence	(.810)	
T2.46 extended direct influence	(.698)	E2.0 sex (.319)
T2.76 information presentation	(-.673)	

In the lower grades, subject trainees tended to provide more directions (or possibly criticisms) and less information or lecture-type utterances. There were slight tendencies for women to more often be teaching in the lower grades, and for the directors (but not the students) of programs involving elementary training to use modules, both known characteristics of the field programs. An inverse relationship of indirect verbal influence to direct influence or grade level was not found with this factor.

Second factor (5.8% of variance)

T7.2 dull to stimulating	(-.881)	T5.1 pupil attention score (-.330)
T7.3 disorganized to systematic	(-.850)	
T7.4 harsh to kind rating	(-.792)	E9.1 social activism (-.301)

The three adjective pair ratings of classrooms were correlated with each other and with little else, except perhaps slightly influenced by what observers recorded as pupil attention. The loading of social activism was quite low on this factor, resulting in little excitement or remorse for not trying to explain its presence.

Third factor (5.4% of variance)

P5.2 field centeredness	(-.738)	P3.16 rural (.498)
P6.22 parents' influence by director	(-.809)	E6.2 mothers' education (.342)
P11.11 supervisory observations	(-.653)	E4.1 graduate vs. undergrad. (.359)
		P6.21 Parents' influence (trainee) (-.327)

This factor had a rather obvious group of variables. Programs that had more time in the field provided more supervisory observation and, probably because of explicit purpose of Teacher Corps (located in rural areas), reported more parental influence.

Fourth Factor (5.2% of variance):

P17.3 ratings of coop teacher	(-.808)	P7.16 rural	(.448)
P4.1 grad vs. undergrad	(.735)	P8.12 microteaching (Director)	(-.479)
E17.0 age	(.601)	P8.11 microteaching	(-.300)

This factor represents Project 1070 as much as anything. No cooperating teachers were part of this experienced teacher program, and data on this variable (P17.3) were not adjusted, so nobody being rated was given the extreme low score of zero. Experienced teachers were older on the average, and they were not undergraduate students. The Project 1070 director reported no use of microteaching.

Fifth Factor (4.6% of variance):

T3.1 small group, individuals	(.897)	T6.1 individualization rating	(.328)
T3.4 small group	(.759)		
T4.43 transformed variable about procedures	(.693)		

Sixth Factor (4.8% of variance)

T4.12 above knowledge questions	(.887)	T4.43 transformed variable on procedures	(.433)
T4.22 above comprehension questions	(.682)		
T4.41 emphasis on procedures	(-.786)		

All variables are rather obviously related. When higher level substantive questions were asked, there were fewer time segments when either no questions or only procedural questions were asked.

Seventh Factor (3.9% of variance)

P12.15	Trainees' rating of choice over trainee evaluation	(.777)
P12.16	Trainees' rating of choice over all phases of program	(.839)
P15.1	Trainees' rating of individualization of program	(.519)

Eighth Factor: (4.1% of variance)

E2.0	sex	(.616)
E5.3	camp counseling experience	(.545)
E5.4	other child experiences	(.610)
E5.4	total prior experience with children	(.884)

Women tended to report more prior experience with children (baby-sitting and Sunday school experience reports were not included in this factor analysis).

Ninth Factor (3.8% of variance)

T1.1 principals' ratings (-.539)
P4.12 modules reported by director (-.745)
P15.1 individualized training, trainees (-.446)
P15.2 individualized training director (-.413)

This factor may reflect the Auburn program. The one principal there probably had a response set on the ratings lower than other principals (perhaps taking the statements on the form at face value and now following a common tendency to inflate ratings). The program was characterized by substantial use of modules and rather high ratings for individualized teacher training.

Tenth Factor (3.9% of variance)

T2.56 pupil-initiated comments (.823)
T2.66 extended pupil-initiated comments (.785)
P8.11 trainee-reported microteaching (.381)

Pupil-initiated talk and expression of pupils' own thoughts were not found related to anything else save slightly to microteaching. This investigator hesitates to suggest any causal influence.

Variables included in this analysis but which did not have a loading greater than .300 on any of the first ten factors (but often had loadings on factors other than the first ten) were the following:

P2.12	Indian Minority	E6.1	Father's Occupation
P2.14	Total Minority	E8.1	Tolerance of Ambiguity
P19.17	Attitude Training	E10.1	Social Responsibility
T2.16	Indirect Influence	E11.1	Dogmatism
T2.26	Extended Indirect	E16.11	Campus Activities
T5.1	Pupil Attention	E16.51	Campus Activities
E3.1	General GPA	E16.91	Campus Activities

The main import of this factor analysis seemed to be not what occurred together, but what was found not to occur together. Even such things as verbal indirect influence were not found inversely related to direct influence nor directly related to the lower grades (the indirect influence variables were found in the 16th factor with few others except a small loading from the pupil attention score).

Second Factor Analysis (28 variables, 114 subjects): After the first factor analysis yielded several small clusters of variables, a second analysis was performed on a reduced variable set. The major attempt of the second analysis was to see if factors of heretofore unrelated variables could be found once some of the obviously related variables within small clusters had been removed. Also, reduction to twenty-eight variables made the variables to subjects ratio somewhat more tolerable. Variables were dropped from the first set of 54 largely because they were members of a pair or small group of variables that

were rather obviously intercorrelated (such as direct verbal influence and extended direct verbal influence or the adjective pairs). Which variables to keep was decided partly on the basis of intuitive judgment of importance, visual inspections of the correlation matrix, and inclusion of some substitutes for variables in the first set (including the four cluster scores from item-recombinations from the entry attitude scales, described in Appendix A_2, instead of scores from the original scales). Among the 28 variables were eight on entry characteristics, eleven on teaching characteristics, and nine on program characteristics.

This time with the same criterion (an eigenvalue equal to or greater than 1.00), the analysis accounted for about the same portion of the total variance, 75.7%, and extracted a somewhat reduced number of factors, eleven to be exact. The initial factors after rotation individually accounted for a somewhat greater portion of variance with the first one accounting for 9.8%. The clusters of variables which had loadings on the first ten factors are indicated below in the same manner as in the preceding section.

First Factor (9.8% of variance):

P1.1	grade level	(-.641)	T2.16	indirect verbal influence (.415)
T2.36	direct verbal influence	(.756)	T6.1	individualized instruction (.455)
T2.76	information presentation	(-.834)	P4.11	module use in training (.365)
			E2.0	sex (.350)

The original intercorrelations among these variables provide some inkling of the strength--or lack of strength--of the associations between the various pairs of variables in this factor.

	E2.0	Pi.1	P.11	T2.16	T2.36	T2.76	T6.1
E2.0	1.00	-.39	.20	.18	.27	-.30	.19
P1.1	-.39	1.00	-.48	-.35	-.38	.55	.19
P4.11	.20	-.48	1.00	.24	.24	-.24	.23
T2.16	.18	-.35	.24	1.00	.28	-.23	.06
T2.36	.27	-.38	.24	.28	1.00	-.51	.21
T2.76	-.30	.55	-.24	-.23	-.51	1.00	-.36
T6.1	.19	-.19	.23	.06	21	-.36	1.00

Similarities between this factor and the first one of the first analysis can be noted. The higher the grade level, the less direct influence and the more information presentation was used. This time, in addition, the indirect verbal influence variable had a moderately low loading indicating that teachers of the lower grades had a slight tendency to use more indirect influence. With the grade level variable considered as an anchor

point, the presence of the other variables seemed reasonable. Field programs which had a greater number of trainees assigned to lower elementary grades also tended to use modules more and to have more women.

Second Factor (7.4% of variance):

P5.2 field-centeredness (.832)
P6.22 parental influence, directors' reports (.865)
T7.3 disorganized to systematic rating (.356)
E12.1 attitude item cluster (.351)

The program which had trainees in the field for the longest period of time, the Teacher Corps' two-year internship program, also was the program which attempted to involve parents in decision-making for the program and, as a result, reported greater parental influence. Little else appeared to be specifically related to this "Teacher Corps factor" except to a slight degree a "willingness to tackle problems and do a good job," the attitude item cluster, and a rating toward disorganized rather than systematic teaching.

Third Factor (6.7% of variance):

T4.12 above knowledge questions (-.891)
T4.41 procedural or no questions (.874)

The frequency of time segments during which pupils were recorded as responding to above-knowledge questions was simply related to the frequency of time segments during which they were supposed to respond to any substantive question--and related to nothing else.

Fourth Factor (5.4% of variance):

T3.1 small group, individual organization (.623)
E13.1 second item cluster (.661)
T2.16 indirect influences (-.354)
E15.1 4th item cluster (.375)

The first impression was that teachers used less indirect influence when they had pupils working in small groups or as individuals, but the correlation between these variables was only -.06. No other intercorrelation among the above four variables exceeded .23, and speculations about causal or reciprocal relationships among the variables hardly seem worth the effort. The attitude item clusters were labelled "inequities and regimentation in society" (E13.1) and "dichotomization of problems" (E15.1).

Fifth Factor (5.5% of variance)

E12.1 1st item cluster (.618)
E14.1 3rd item cluster (.767)
E15.1 4th item cluster (.534)

Three of the four item clusters, loaded with items from the dogmatism, intolerance of ambiguity, and social responsibility scales were found to load on a factor that was related to little else.

Sixth Factor (5.8% of variance)

P3.31 urban-rural (-.637)
P4.11 modules, by trainee (.520)
P17.3 ratings of coop. teachers (.794)

A probably misleading cluster, harmlessly unrelated to other variables. Project 1070 subjects had no cooperating teachers, and scores on cooperating teachers for them were entered into the data matrix as the extreme low, zero. Project 1070 trainees did not study modules to any extent, and several were located in rural areas.

Seventh Factor (6.9% of variance):

E2.0 sex (.701)
E3.3 GPA, previous year (.700)
E5.5 child experience (.764)

Women who went into these education training programs tended to report slightly higher grade point averages, at least in the last year before the field experience (r = .27), and to have had more previous experience with children (r = .46).

Eighth Factor (5.1% of variance):

T1.1 principals' ratings (-.616)
P12.16 trainee choice over program (-.778)

To a slight degree (r = .23) trainees who believed they had more influence over the nature of their own training were rated higher by principals. Because principals associated with the different programs were different, principals with a higher response set may have more or less accidentally been found to be with programs that gave more choice to trainees.

Ninth Factor (5.0% of variance):

T2.66 extended pupil initiated talk (.792)
T1.1 principals' ratings (.392)
P2.25 disadvantaged (-.313)
T2.16 indirect influence (.353)

To a slight degree, where fewer pupils were reported as coming from disadvantaged families, indirect influence was used more by teacher, pupils tended to express their own ideas more, and principals gave higher ratings. Which influenced which, if any causal relationships were there, is a matter of guesswork.

Tenth Factor (5.9% of variance):

T5.1 pupil attention (.730)
T7.3 systematic rating (.538)
P2.25 disadvantaged (.485)
T2.16 indirect influence (.356)
P1.1 grade level (-.357)

Where pupil attention was rated higher, adjective pair ratings--of which T7.3 was the only one included in this analysis--were also higher. These ratings tended to be higher for teachers in the lower grades who tended to use more indirect influence statements. The inverse association between indirect influence and grade level ($r = .35$) was noted in previous factors, particularly the first. Also, teacher trainees working in the lower grades also happened to be with classes that had a higher proportion of pupils judged to come from disadvantaged families.

This factor analysis provided roughly comparable results to the first and added a little to it. The first factor in both included mostly the same variables and accounted for a larger portion of variance in the second analysis. The cluster scales, a substitution in this second analysis, tended not to do anything remarkable when three of the four clustered only with themselves in the fifth factor. However, a new factor (the fourth) did emerge which included loadings of two of the clusters along with loadings from classroom organization and indirect influence and not from grade level, which elsewhere had been found associated with organization and indirect influence. The indirect influence variable showed a little life this time by having some loadings scattered through four of the ten factors, including the first which also had the grade level, pupil expression, and direct influence variables.

Table III presents loadings of all variables on ten factors in this factor analysis.

Third Factor Analysis (25 variables, 61 subjects): A third factor analysis was performed on a reduced number of subjects in order to take into account the variables measured by the exit Questionnaire. Only 61 subjects returned their questionnaires, and it was felt that data this incomplete could not reasonably be included in an analysis pertaining to 114 subjects even by substituting group averages for missing scores. The exit questionnaire provided scores on four variables: T11.1, the Teaching Situation Reaction Test; P16.1, the intellectual challenge rating; T10.1, commitment to teaching; and P19.27, attitude toward the training program expressed upon completion of the program. Twenty-one other variables were selected for this analysis. The 61 subjects could not be considered a random subset of the original 114.

The analysis accounted for 75.7% of the variance and produced ten factors with the same eigenvalue = 1.00 criterion.

The first factor, accounting for 9.7% of the variance, contained loadings from the identical variables as in the first factor in the second analysis, which was also similar to the first factor of the first analysis.

The second factor, accounting for 9.5% of the variance, contained loadings from three of the exit questionnaire measures--all except commitment to teaching--and a loading from only one other variable, the probably misleading cooperating teacher variable, P17.3. Project 1070 subjects, who had no cooperating teachers and were thereby given the

TABLE III

VARIABLE LOADINGS AND VARIANCE ACCOUNTED FOR
BY FIRST TEN FACTORS FROM FACTOR ANALYSIS
OF 28 VARIABLES AND 114 SUBJECTS

	FACTOR									
VARIABLE*	1	2	3	4	5	6	7	8	9	10
T1.1	-.145	-.123	.285	-.022	.073	.020	-.051	-.616	.392	.118
P1.1	-.641	-.091	.100	.155	.070	-.008	-.136	.189	.198	-.357
P2.14	.009	.064	.075	.130	-.043	.026	-.003	-.089	-.052	-.005
P3.31	-.226	.241	.072	-.105	.194	-.637	-.054	.090	.153	-.123
P4.11	.365	.211	.051	-.001	-.085	.520	.112	-.297	-.043	.287
P5.2	.011	.832	.063	-.001	-.045	.169	-.002	-.022	-.052	-.054
P6.22	.090	.865	.041	.000	.074	-.262	-.076	-.026	-.023	.084
P12.16	.105	.061	-.122	.085	.070	-.021	.024	-.778	-.207	.027
P17.3	-.175	.047	.014	-.101	.295	.794	.009	.152	.112	-.101
P2.25	.217	.003	-.038	-.215	.087	.022	.025	.042	-.313	.485
P2.16	.415	-.207	-.134	-.354	-.211	.150	-.025	.000	.353	.356
P2.36	.756	-.083	.115	.026	.154	.034	.029	.080	.225	.098
P2.66	-.018	-.044	-.279	.060	.067	-.017	.055	.112	.792	-.106
P2.76	-.834	-.089	.107	.022	.084	.014	-.065	.034	.198	.055
P3.1	.295	.063	-.124	.623	.071	.075	.024	.075	.073	.034
P4.12	-.011	-.017	-.891	-.003	-.047	.000	-.033	.013	.043	-.028
P4.41	-.063	.087	.874	.040	.036	-.013	.004	.051	-.159	-.012
P5.1	.195	-.092	.079	.195	.005	-.048	.141	-.143	.041	.730
T6.1	.455	.300	-.016	.277	-.011	.064	.083	-.118	.124	-.271
T7.3	-.198	.356	-.032	-.107	-.102	.153	-.131	.089	-.104	.538
E2.0	.350	-.035	-.014	-.161	.123	-.116	.701	-.052	-.101	.050
E3.3	-.075	.015	.067	.073	-.119	-.090	.700	.008	.271	.149
E5.5	.039	-.085	-.013	-.082	.051	.276	.764	.007	-.104	-.097
E6.1	-.017	-.052	.041	.023	.009	.080	.033	-.028	.047	.032
E12.1	.026	-.351	-.031	-.345	.618	-.069	.119	-.235	-.051	-.007
E13.1	-.274	-.061	.107	.661	-.065	-.069	-.157	-.191	.038	.015
E14.1	.001	.193	.065	.058	.767	.160	.006	-.073	.109	-.099
E15.1	.004	-.172	.116	.375	.534	-.119	-.107	.311	-.121	.236
VARIANCE ACCOUNTED FOR	9.8%	7.4%	6.7%	5.4%	5.5%	5.8%	6.1%	5.1%	5.0%	5.9%

*Description of variables by code number is presented in Appendix A.

extreme low score on the P17.3 variable, scored "well" on the TSRT (low scores generally regarded as desirable) and on attitude toward their teacher training program. They were just average on the intellectual challenge rating, and the loading of this variable on the factor was in the opposite direction. Loadings were -.915 for TSRT, .844 for attitude toward the program, .443 for intellectual challenge, and -.415 for co-operating teacher rating.

The commitment to teaching variable did not appear until the ninth factor where it had a loading of .779 along with intellectual challenge (.717) and a rather low one from classroom small group or individual organization (-.345).

Apart from the new variables, which pretty much stayed together and did not mix well with the others, the factor pattern was not strikingly different from the previous two analyses for 114 subjects. Loadings on factors other than those already mentioned are given below without comment.

Third Factor (7.8% of variance):

P2.25 disadvantaged (.626)
E8.1 intolerance of ambiguity (.790)
E11.1 dogmatism (.646)
T2.66 pupil expression (-.347)
T5.1 pupil attention (.387)

Fourth Factor (6.6% of variance):

P17.3 coop teacher rating (-.708)
T3.1 class organization (-.815)
E5.5 child experience (-.303)

Fifth Factor (7.2% of variance):

E2.0 sex (.793)
E5.5 child experience (.719)
T2.66 pupil expression (.300)
E3.1 grade point average (.317)
E11.1 dogmatism (.350)

Sixth Factor (6.7% of variance):

P4.11 modules (.626)
P12.16 trainee choice (.764)
T2.66 pupil expression (-.605)
P1.1 grade level (-.426)

Seventh Factor (5.4% of variance):

T1.1 principals' rating (.669)
E3.1 GPA (.743)
E11.1 dogmatism (-.305)

Eighth Factor (5.8% of variance):

E9.1 social activism (-.867)
T1.1 principals' ratings (-.379)
P12.16 trainee choice (-.422)

Ninth Factor (6.9% of variance):

P16.1 Intellectual challenge (.717)
T10.1 commit. to teaching (.779)
T3.1 group, indiv. organization (-.345)

Tenth Factor (6.0% of variance):

T4.12 above knowledge questions (-.837)
T7.2 dull to stimulating rating (-.615)

As far as the main purpose of this analysis was concerned, the exist attitude scales were not found to be related in any noticeable way with other teaching or program variables.

Discriminant Analyses:

Despite metaphors about sows' ears and silk purses, data analysis continued. One of the primary questions of the study concerned in what respects the seven training programs were different. This question could be more directly answered by discriminant analysis than factor analysis. Moreover, if the "right" or more significant training variables had been missed by the study, a finding of different teaching behavior among trainees of the various programs could lead to a reexamination of the programs for previously missed training characteristics possibly related to the teaching behavior differences. If trainees in the programs were different in respect to entry characteristics, different character of the programs in respect to training, trainee behavior, or some combination could potentially be interpreted in terms of accommodation to the entering differences of the trainees.

Discriminant Analysis, Teaching Variables: A discriminant analysis was performed on the data from twenty-two variables on all 114 subjects. The variables included twenty labelled teaching variables and two whimsically thrown in program variables, attitude toward training programs and perception of choice over program (P19.17 and P12.16)[1]

With the number of variables exceeding the number of subjects in any one of the seven programs, the accuracy of this analysis was strained and an approximation procedure was necessary to compensate for a near singular matrix. The multiple discriminant analysis procedure used was that from Cooley and Lohnes.[2]

This discriminant analysis produced a generalized correlation ratio of .8658 indicating the proportion of group membership variance accounted for by all six discriminant functions. The correlation ratio was inflated somewhat by the high variables to subjects ratio. The preliminary analyses performed by the program showed ten variables having significant differences between programs at the .05 level of confidence and two at the .01 level.

The discriminant analysis produced two statistically significant discriminant functions, using a chi-square probability of less than .05 as a criterion, with canonical correlations of .66 and .60 respectively.

Examination of each significant discriminant function separately provided a reasonably comprehensible picture of how trainees in the programs differed in regard to measured teaching behavior. Description of both functions together gives a more accurate picture, but strains

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[1]The first discriminant analysis performed actually was of data from a mixture of entry and training variables. The results made even less sense conceptually than the reasoning for running the analysis in the first place, so the discussion proceeds directly to the next analysis performed.

[2]Op.Cit.

powers for meaningful interpretation (fortunately for graphing and descriptive purposes, no more than two functions were found significant by a standard criterion--if statistical significance is ever a legitimate concept for descriptive data).

Seven variables had major loadings on the first discriminant function. On the plus side were principals' ratings (T1.1), direct verbal influence (T2.36), and pupil attention (T5.1). Pupil-initiated comments (T2.55 and T2.56), extended pupil comments (T2.66), and information presentation (T2.76) had negative loadings. Of these seven variables, all but extended pupil comments had statistically significant differences among programs according to a univariate F test. The training programs that had positive discriminant scores and had a direct relationship with the three variables having positive loadings, were in order Project 1070, Everett Turnabout, and the Auburn program. The program with the largest negative loading was the Teacher Researcher program, followed in order toward the middle by Teacher Corps, the Southeast Seattle program, and the Conventional program. This program-variable pattern was borne out when the rank of the programs for six of the variables was examined separately, as in Table IV. When the ranks for the three variables having the negative loadings are reversed, Project 1070 was found to be first or tied for second on all six variables. Everett placed between first and third in all six. At the other end, Teacher-Researchers Placed between fourth and seventh on all, as did Teacher Corps. The three programs in the middle had a more varied pattern.

TABLE IV

RANK OF PROGRAMS ON SIX VARIABLES HAVING HIGH LOADINGS ON THE FIRST DISCRIMINANT FUNCTION OF THE DISCRIMINANT ANALYSIS OF TEACHING VARIABLES

Program	Positively Loaded Variables			Nevatively Loaded Variables			Discriminant Function Score
	T2.36	T5.1	T1.1	T2.55	T2.66	T2.76	
Project 1070	2	1	1	7	5½(TIE)	5½(TIE)	.919
Everett Turnabout	1	3	3	5	7	5½(TIE)	.914
Auburn	3	2	4	1	2	7	.143
Conventional	4	7	7	6	3½(TIE)	2½(TIE)	-.097
Southeast Seattle	6	5	2	2	5½(TIE)	1	-.313
Teacher Corps	7	6	6	3	3½(TIE)	4	-.518
Teacher Researcher	5	4	5	4	1	2½(TIE)	-.892

T2.36 - Verbal Direct Influence
T5.1 - Pupil Attention
T1.1 - Principals' Ratings
T2.55 - Pupil initiated talk
T2.66 - Pupil talk, extended
T2.76 - Information presentation

The second discriminant function contained loadings from variables of probably greater interest. All seven of these variables had negative loadings, and accordingly all training programs which had negative scores ranked higher on these variables than programs with positive scores. With the exception of one variable having to do with emphasis on procedural talk during small group or individual class organization (T4.43), all of the variables loading on this function showed statistically significant differences among groups according to the univariate F test. Only one of the seven variables, pupil attention (T5.1) also had a consequential loading on the first function; its loading on the second function was larger than on the first.

The variables loading on the second function were attitude toward training programs (P19.17), verbal indirect influence (T2.15 and T2.16), extended verbal indirect (T2.26), individual pupil class organization (T3.3), emphasis on procedure (T4.43), and pupil attention (T5.1). Ranged along this function with negative scores, along with all seven variables, were four of the programs starting with the Teacher-Researcher program and followed in order by Auburn, Everett Turnabout, and Project 1070. On the positive side, away from the high scores on the variables, were the conventional programs and, moving closer to the origin, Teacher Corps and SE Seattle. The rank of the programs for each of the seven variables is presented in Table V. Here, looking at rank rather than loading on the function, the most extreme program directly related to the variables appeared to be Auburn rather than the Teacher-Researcher program, whereas at the other end (low scores on the variables) Teacher Corps was at least as extreme on the rankings as the conventional program.

TABLE V

RANK OF TRAINING PROGRAMS ON SEVEN TEACHING VARIABLES HAVING MAJOR LOADINGS ON THE SECOND DISCRIMINANT FUNCTION OF THE DISCRIMINANT ANALYSIS OF TEACHING VARIABLES

Program	Variable							Discriminant Function Score
	P19.17	T2.15	T2.16	T2.26	T3.3	T.4.43(NS)	T5.1	
Auburn	2½	1	1½	1½	2	3½	2	-.414
Teacher-R	2½	3	3	1½	3	1	4	-.941
Everett	1	2	1½	4½	1	2	3	-.344
Project 1070	4	4	4	3	7	5	1	-.127
SE Seattle	6	5	5	4½	4	7½	5	.365
Conventional	5	6	6	7	5	7½	7	.827
Teacher Corps	7	7	7	6	6	3½	6	.644

It should be noted that variables which had loadings on the same discriminant function did not necessarily intercorrelate. For instance, the known correlations of attitude toward training program (P19.17) with the other variables loading on the second function ranged from .01 to .20.

Table VI presents more complete information about the two significant discriminant functions including loadings of all twenty-two variables on each. Examination of both functions together makes possible the description of the position of both variables and programs in discriminant space. Explaining and interpreting the positioning of programs and variables considering both functions is hardly simple, but at least it is not as bad as if there had been more than two significant functions.

A display of the discriminant space with the two discriminant functions positioned at right angles showing locations of both significant variable and program statistics is given in Figure 1. The horizontal axis represents the first function. A cluster of variables is found primarily in the lower right quadrant (positive on the first function and negative on the second), closer to the middle of the first function than the second. These are: attitude toward training programs, class organization for individual work, verbal indirect influence, and pupil attention. Although the scale for program placement in the space is different than for variables, the placement of the Auburn program with the cluster shows that this program is in the same direction from the origin as are the variables of the cluster. Not far away and in the same quadrant are the principals' ratings and verbal direct influence variables. In the same quadrant but holding extreme positions on the first function are the Project 1070 and Everett programs. Although the distance between those two and Auburn is considerable, they may be considered as a group distinguished by higher scores on the aforementioned variables, a finding supported in part by the patterns of rankings in Tables IV and V.

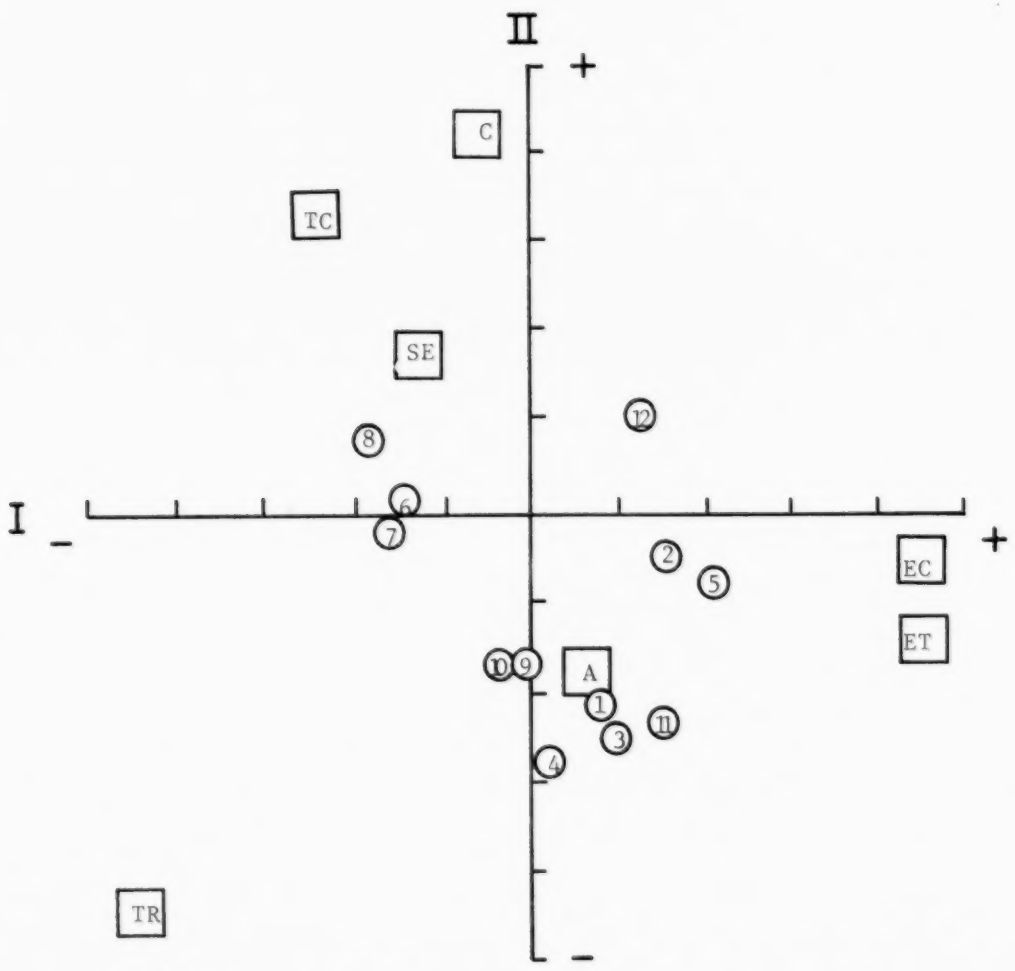
In the opposite quadrant are found the conventional program, Teacher Corps, and, considerably closer to the middle, SE Seattle. Teacher Corps and the conventional program are distinguished by being the farthest away from the clusters of variables in the lower right quadrant--and trainees in these programs were in fact observed to use less indirect influence, have lower pupil attention, and have pupils work less as individuals (but more in small groups, a teaching variable not included in this analysis) than in the other programs.

Another cluster of variables having to do with presentation of information (lecture type statements and expression of pupil ideas) is positioned along the horizontal axis (first function) on the negative side along with Teacher Corps, Conventional, and SE Seattle programs. These programs did have the highest ranking for their average scores on these variables (Table IV).

Far off by itself in the extreme lower left can be found the Teacher Researcher program, the program for juniors who worked mainly as teacher assistants, who were frequently observed only once with a small group,

FIGURE 1

Location of significant variables and programs in discriminant space of two functions from discriminant analysis of 22 teaching variables*



Variable

1-P19.17 attitude toward training program
2-T1.1 principals' ratings
3-T2.15, T2.16 indirect verbal influence
4-T2.26 extended indirect influence
T-T2.36 verbal direct influence
6-T2.55 pupil initiated comments
7-T2.56 pupil initiated comments
8-T2.76 information presentation
9-T3.3 individual class organization
10-T4.43 procedural emphasis
11-T5.1 pupil attention
12-P12.16 perception of choice

Program
A - Auburn
SE - SE Seattle
EC - Project 1070 Early Childhood
TR - Teacher Researcher
TC - Teacher Corps
ET - Everett Turnabout
C - Conventional

*The basis for the scale which places programs in discriminant space is different from the scale for variables. Programs can be compared with other programs in terms of both direction and distance from the origin. Variables also can be compared with each other on both distance and direction. However, programs can be directly related to variables on direction (angle) from origin only, not distance. Without scale transformations, programs are generally located further from the origin.

TABLE VI

DISCRIMINANT ANALYSIS OF TEACHING VARIABLES: VARIABLE LOADINGS, PROGRAM LOADINGS, AND OTHER STATISTICS

Variables with significant univariate F	Variable Loadings: First Function	Second Function	Univariate Anova F (6,107df)
P12.16	.245	-.208	2.65
P19.17	.209	-.413	2.45
T1.1	.308	-.101	2.69
T2.15	.219	-.524	3.17
T2.16	.232	-.505	3.01
T2.26	-.010	-.551	2.60
T2.36	.424	-.175	2.21
T2.55	-.354	.036	2.36
T2.76	-.391	.171	2.27
T3.3	-.026	-.356	2.25
T5.1	.331	-.478	3.83
Other Variables			
T2.46	.286	-.005	.83
T2.66	-.350	-.185	1.52
T3.4	-.211	-.032	2.03
T4.12	-.079	-.020	.24
T4.22	-.055	.159	.67
T4.41	.138	.247	1.36
T4.43	-.040	-.357	1.28
T6.1	.124	.168	.97
T7.2	.229	.022	1.59
T7.4	.170	.059	1.55

Program Scores

	First Function	Second Function
Auburn	.143	-.414
Everett	.914	-.344
Southeast Seattle	-.313	.365
Teacher-Researcher	-.892	-.941
Project 1070	.919	-.127
Teacher Corps	-.518	.644
Conventional	-.097	.827

Other Statistics

Canonical R	.659	.604
Canonical R^2	.434	.365
Chi Square/d. f.	198/132	142/105
Lambda	.134	.237

Generalized Correlation Ratio (η^2) = .866
Wilks Lambda = .134

and were in a program stressing behavioral modification. It was, for instance, a program distinguished by high ratios both for verbal information presentation and indirect influence.

To restate, to the extent that the variables showed more than individual and random variation, trainees in the Teacher Corps and conventional programs were characterized as having lower pupil attention, using less indirect influence and individual work, using more than an average amount of time for information presentation, and not enjoying particularly high principals' ratings. Auburn, Everett, and Project 1070 trainees used more indirect influence, enjoyed higher ratings, and had higher pupil attention. SE Seattle trainees were fairly close to the middle. Teacher-researchers were off by themselves, by showing both high indirect influence and high information presentation and relatively high pupil expression of ideas.

Again, one should be reminded that the clustering of variables does not imply high intercorrelations between variables. The intercorrelation matrix (Appendix B) generally indicates otherwise.

Discriminant Analysis, Entry Variables: A discriminant analysis was performed on data from eighteen entry characteristic variables. Most of the entry variable data were obtained from self-reports on the entry questionnaire and subject to whatever error was implicit in the self-reports given by persons responding under different conditions, possibly with different attitudes toward the questionnaire, and having to recall experiences removed in time by varying time periods (such as reporting on baby-sitting experience by persons of different ages). The entry variables also included scores from attitude scales on the entry questionnaire. One variable, attitude toward training programs (P19.17), also was included in this analysis, even though it was included on the previous one.

This analysis produced a generalized correlation ratio of .904 and three significant discriminant functions according to .05 chi-square probability level criterion. Seven of the eighteen variables showed significant ($p<.05$) differences among training groups according to univariate analyses of variance. Data on three variables having to do with age and campus activities were apparently not accurately read into the computer leaving these variables as showing essentially random and non-significant variation.

The first function, which had a canonical correlation of $R = .755$, identified two variables that had both significant differences among groups by a univariate test and highest loadings on the first function. These were reported grade point averages in one's special field (probably higher for those having an elementary education major rather than a subject matter major) and attitude toward training program, E3.2 and P19.17 respectively. Other significant variables having loadings on this function were intolerance of ambiguity (high scores showing intolerance), Mother's education, and previous baby-sitting experience, E8.1, E6.2, and E5.1, respectively. All loadings were positive.

On the first function the Everett program had the highest positive score, followed in order by Auburn, Conventional, and Teacher-Researcher. On the negative side (showing low intolerance of ambiguity, low Mother's education, lower attitude toward program, etc.) the most extreme was Teacher Corps, followed by Project 1070 and SE Seattle. A check of rankings on individual variables showed quite consistent results; Teacher Corps ranked seventh on all five variables while Everett was first on three, third on one (E5.1) and fifth on another (E6.2).

The second significant discriminant function received its highest loadings on two significant variables, intolerance of ambiguity again (+.474) and prior camp and recreation experience (-.458). Other loadings slightly more than trivial were a positive one for attitude toward training and negative ones for therapeutic and other experience with children and mother's education.

Two programs had high positive scores on this function, Project 1070 and Everett. On the negative side the most extreme was Auburn followed in order by SE Seattle, Teacher Corps, Conventional, and Teacher-Researcher. For the first time in either discriminant analysis, Auburn and Everett parted company.

Two child experience rating variables, baby-sitting (E5.1) and therapeutic - "other" (E5.4), and reported education of mother (E6.2) had the highest loadings on the third discriminant function. Baby-sitting had a positive loading and the other two were negative. (Mother's education had a higher loading on another non-significant function than on this function.) On this function the extreme positive score was that of the SE Seattle program, followed on the positive side by Everett and, close to the middle, the Teacher Researcher program. Auburn had the largest negative value with other negative scores for remaining programs not too large.

Program scores and variable loadings on all three functions are given in Table VII.

Program Description from Discriminant Analyses:

A recap of the findings from discriminant analyses is presented here by describing each program separately in terms of its most salient differences from the other programs. Descriptions of the programs include both teaching and entry characteristics but are limited to those variables that were "significant" according to univariate F tests. Although variables show differences that are "significant," they nevertheless are often slight.

Auburn (n=12): High in terms of special field GPA (but not other GPA reports which were not significantly different among groups), Mother's educational level, attitude toward training programs (tied for second), and other (especially therapeutic training) previous experience with children. Low average (fifth) in intolerance of ambiguity.

TABLE VII

VARIABLE LOADINGS AND PROGRAM SCORES ON THREE SIGNIFICANT FUNCTIONS OF DISCRIMINANT ANALYSIS OF 18 ENTRY CHARACTERISTIC VARIABLES (N = 114)

Variable	Loading on 1st Function	Loading on 2nd Function	Loading on 3rd Function	Univariate F
P19.17 Att toward train	.337	.224	-.206	2.45
E2.0 Sex	.113	.395	-.027	2.09
E3.1 GPA-General	.051	.024	-.109	.37
E3.2 GPA-Specific	.785	.023	.141	10.72***
E3.3 GPA-Last Year	.003	-.034	-.168	.46
E5.1 Baby-sitting	.228	.010	.586	4.31**
E5.2 Church, Sun.Sch.	.133	.369	-.076	1.62
E5.3 Camp, Recreation	.193	-.458	-.274	3.12**
E5.4 Other Child Exp.	.203	-.263	-.387	2.86**
E6.1 Father's occupation	.089	.145	.236	1.95
E6.2 Mother's Education	.268	-.355	-.345	4.12**
E8.1 Intol of Ambig	.360	.474	-.032	4.60**
E9.1 Pol-Soc Activism	-.260	-.023	-.009	1.14
E10.1 Social Resp.Scale	-.128	-.051	.000	.62
E11.1 Dogmatism	.166	.148	.063	.54
E16.51 Activity	.157	-.207	-.208	1.41
E16.02 Activity	-.139	-.294	-.188	1.42
E17.0 Misread Variable	-.038	-.187	-.012	1.29
Chi Square/d.f.	236/108	151/85	93/64	
Canonical R	.755	.661	.593	
Program				
Auburn	.712	-.846	-1.144	
SE Seattle	-.335	-.524	.961	
Early Childhood (1070)	-.721	1.191	-.388	
Teacher Researcher	.184	-.135	.122	
Teacher Corps	-1.115	-.428	-.104	
Everett Turnabout	1.338	.672	.462	
Conventional	.214	-.173	.252	

*p<.05 **p<.01 ***p<.001

Concerning teaching variables, Auburn trainees used indirect verbal influence (from Flanders' interaction analysis as modified for time segments) more often than in any other program. Rated pupil attention was second highest as was class organization for pupils working as individuals (but not small groups, which was a non-significant variable). Auburn trainees were third high in use of direct verbal influence (directions and criticism), received average ratings from their principal, most often had pupil expression and/or initiation of their own ideas (second highest on extended pupil expression), and least often presented information to pupils.

Southeast Seattle (n=18): This clinical program's undergraduate trainees had slightly lower than average reported special field GPA, low intolerance of ambiguity scores, comparatively low attitude toward training program,[1] and low reported Mother's educational level. They reported considerable prior baby-sitting experience but low "other" prior child experience.

Seattle trainees were low average in use of both direct and indirect verbal influence and in securing overt pupil attention. They were first in frequency of presenting information and second in obtaining pupil expression or initiation of ideas (but not extended pupil comments, a non-significant variable). Principals' ratings were high.

It should be noted that Southeast Seattle was a program that had several teacher trainees on the secondary level; only one other group had trainees in senior high, and elementary-secondary school differences may have entered in. It was also the program that was located in the most urban area, and it had the highest proportion of minority pupils.

Early Childhood (Project 1070) (n=18): The experienced teachers in the early childhood program reported low special field GPA, low level of mother's education, and low previous experience with children either baby-sitting or other (perhaps they forgot), and had high average intolerance of ambiguity scores. The 1070 teachers were average in use of indirect verbal influence, second in use of direct influence (perhaps inherent in teaching lower grades), were highest in having pupils do work as individuals, had the highest principals' ratings, and secured the highest rated pupil attention.

Teacher-Researcher program (n= 20): The junior students in the T-R program were different on teaching variables from all other programs in discriminant space--and they were on the average observed less often. T-R subjects were average in special field GPA, intolerance of ambiguity, and in previous experience with children. They were moderately high in reported level of mother's education and attitude toward

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[1]The midpoint between positive and negative responses to six items summed to 24 on this scale; and all programs averaged above the midpoint, that is, gave some degree of positive response. The positive degree was less for Seattle trainees than for five other programs.

teacher training. When teaching, the T-R subjects were slightly higher than average in indirect influence and average in pupil attention. They were also average or slightly below average in use of direct influence and in pupil expression/initiation of ideas, and they had below average ratings from their principal. They more frequently than average presented information.

Teacher Corps (n= 15): Teacher Corps interns (at least those twelve who completed the entry questionnaire), were lowest in reported special field GPA, intolerance of ambiguity, reported level of mother's education, attitude toward their two-year training program (opinion given after 1-1/2 years in program), and reported baby-sitting experience (but above average in "other" child experience). When teaching, interns were lowest in use of direct influence, average in getting pupil expression of ideas and presenting information, and last in use of indirect influence. The Teacher Corps interns were next to last in obtaining overt pupil attention and positive principals' ratings.

Everett Turnabout (n= 15): In the first year of their program, Everett trainees reported the highest special field GPA, attitude toward teacher training, and average levels of mother's education and previous child experience. Everett trainees used direct verbal influence more frequently than in any other program and they had average levels of pupil expression of ideas, presentation of information, principals' ratings, and pupil attention.

Conventional (n= 17): In a sense, if this group had been larger it could have served as a control group for all the others. Conventional trainees were average among trainees of other programs in reported special field GPA, Mother's education, and attitude toward training. They were second in reported previous experience with children, both baby-sitting and "other." When teaching, Conventional trainees used an average amount of direct verbal influence and an above average amount of information presentation (along with only SE Seattle, some conventional trainees were in secondary school situations). The conventional trainees were lowest or next to lowest in indirect verbal influence variables, principals' ratings, pupil attention, and pupil expression or initiation of ideas. To the extent that conventional values can be placed on these variables per se, the clinical programs did in fact show up better than the subject trainees non-randomly selected from the conventional program.

Canonical Correlation:

In order to gain some idea of how much composites of certain subsets of variables were predictable from other subsets, some canonical correlations were computed. It was of special interest to know how well a composite of teaching behavior variables was predictable from entry variables as opposed to program and setting characteristics. The canonical correlations thus obtained were also amenable to comparison with canonical correlations with group membership from the discriminant analyses.

Data from 89 variables on the 114 subjects were read into the computer for a series of canonical analyses. The first three canonical correlations involved pretty much the same variables as in the discriminant analyses reported in the previous section. The only difference among the three was the placement of the two program variables, attitude toward program (P19.17) and perceived choice over program (P12.16). The first correlation was between the set of entry variables and the set of teaching variables plus the two program variables. The second correlation was between the same two sets with the program variables in neither set. The third analysis combined the two programs variables with the set of entry variables. For these three correlations there were twenty-two entry variables, twenty teaching variables, and two program variables. The set of two program and twenty teaching variables was identical to the set for the first discriminant analysis previously described.

The canonical correlations were not statistically significant for any of these three cases.[1] Values of the three correlations ranged from .759 to .770 (squared values ranged from .576 to .593), not large in view of the high variables to subjects ratio. The probabilities that these correlations were more than would occur by chance, as determined by a chi-square probability criterion, ranged from no less than .27 to approximately .30. The data collected on the entry variables did not predict any observed patterns of teaching behavior.

When program and setting variables were related to the same subset of teaching variables (P12.6 or P19.17 were not included with the teaching variables), a significant canonical correlation of R=.857 (R^2= .734) did emerge. The chance chi-square probability was less than .0005. Something to do with the training programs and the setting in which trainees performed had something to do with how trainees actually performed.

Examination both of the correlations of individual variables with the first canonical variate and of the canonical weights (Table IX) provide some indication of which variables were the more important contributors to the equation. The grade level factor had by far the largest values in the set of program variables. Trainee reports of microteaching episodes (P8.11) had a very low correlation with the variate but the second highest canonical weight, indicating the variable's function as a suppressor variable. Perceptions of choice and of individualized training and number of disadvantaged children (P12.14, P12.15, P15.1, and P2.25) also appeared to be among the stronger variables of the set.

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[1] In fact, when multiple regression equations were computed for individual teaching variables from all of the variables in the other set, only one of the twenty was significant (at the .05 level) in the first canonical analysis and only three in the third. Multiple Rs ranged from .34 to .57 (for variables T6.1, T7.2, and T7.4) in the third of these analyses.

The teaching variables that were more prominent in the canonical analysis were direct and indirect verbal influence, presentation of information, and pupil attention (T2.15, T2.16, T2.36, T2.76, and T5.2). Three other teaching variables, emphasis on procedures (P4.43) and two adjective pairs (T7.2 and T7.4) had correlations with the second variate slightly in excess of .50 (The second canonical variate in this analysis could also be called statistically significant with a chi-square chance probability less than .03).

The variables that tended to be more prominent in the factor and discriminant analyses also tended to make the more important contributions to the canonical correlation. In particular the setting variable of grade level again made a major contribution by being inversely associated with direct and indirect verbal influence and pupil attention and directly associated with information presentation.

The canonical correlation of R=.857 (for the first "root") was greater than the canonical correlation of R=.659 derived from the discriminant analysis in which the same teaching variables were related to or "predicted from" group membership. Group membership alone was not as good a predictor of teaching variables as were measured program and setting variables, but it is quite possible that the difference in the Rs was due simply to a larger number of program variable predictors than group membership predictors. In any event, teaching behavior as observed and rated was to some extent predictable from either group membership or program variables.

Lists of variables included and values of the largest canonical correlations are presented in Table VIII. Table IX contains statistics for individual variables from the canonical correlation.

TABLE VIII

VALUES AND VARIABLES OF FOUR CANONICAL CORRELATIONS
(Description of variables are presented in Appendix A)

Variable Group A:

T1.1, T2.15, T2.16, T2.26, T2.36, T2.46, T2.55, T2.50, T2.76, T3.3, T3.4, T4.12, T4.22, T4.41, T4.43, T5.1, T6.1, T7.2, T7.4.

Variable Group B:

P12.16, P19.17.

Variable Group C:

E2.0, E3.1, E3.2, E3.3, E4.1, E5.1, E5.2, E5.3, E5.4, E6.1, E6.2, E8.1, E9.1, E10.1, E11.1, E12.1, E13.1, E14.1, E15.1, E16.61, E17.0.

Variable Group D:

P3.16, P1.1, P2.11, P2.14, P6.11, P6.12, P6.21, P6.22, P8.11, P8.12, P11.1, P11.2, P12.11, P12.12, P12.13, P12.14, P12.15, P13.1, P14.15, P15.1, P15.2, P17.3, P2.25.

Canonical Analysis	R	R^2	χ^2/d.f.	p
1st (Groups A+B with C)	.770	.593	502.7/484	>.30
2nd (Group A with C)	.759	.576	466.5/440	>.23
3rd (Group A with B+C)	.765	.585	502.6/480	>.27
4th (Group A with D)	.857	.734	674/520	<.0005

TABLE IX

CORRELATIONS AND CANONICAL WEIGHTS OF FIRST CANONICAL VARIATE FROM CANONICAL ANALYSIS OF SELECTED PROGRAM AND TEACHING VARIABLES (PLUS MULTIPLE Rs OF INDIVIDUAL TEACHING VARIABLES PREDICTED BY SET OF PROGRAM VARIABLES)

Program Variable	Correlation w/variate	Canonical Weight	Teaching Variable	Correlation w/Variate	Canonical Weight	Mult R from other set
P3.16	-.09	-.16	T1.1	.42	.39	.63**
P1.1	-.75	-1.00	T2.15	.45	-.79	.61**
P2.11	-.09	.25	T2.16	.46	.83	.60**
P2.14	.00	-.01	T2.26	.29	.09	.47
P4.11	.26	-.23	T2.36	.39	.03	.56
P4.12	.42	.13	T2.46	.10	.04	.51
--	.00	-.10	T2.55	.13	.20	.58*
P6.11	.06	-.01	T2.56	.17	.11	.59*
P5.12	.31	.29	T2.66	-.09	-.19	.48
P6.21	.10	.01	T2.76	-.68	-.65	.71**
P6.22	-.02	.13	T3.3	.05	-.05	.55
P8.11	.13	.12	T3.4	.02	.00	.53
P8.12	.07	-.67	T4.12	.24	.35	.49
P11.1	-.13	-.11	T4.22	-.01	-.12	.33
P11.2	.03	.19	T4.41	-.34	-.11	.48
P12.11	.19	-.05	T4.43	.15	-.13	.61**
P12.12	.19	-.07	T5.2	.45	.25	.61**
P12.13	.24	.09	T6.1	.12	-.23	.50
P12.14	.18	-.11	T7.2	.35	.17	.61**
P12.15	.07	.15	T7.4	.28	.12	.57
P13.1	.03	.19				
P14.15	.06	.18				
P15.1	.38	.26				
P15.2	.08	-.08				
P17.3	-.18	.33				
P2.25	.31	.34				

*p <.05
**p <.01 (or approximately equal)

SECTION V

CONCLUSIONS

Certain summarizations of the results can serve as responses to the questions posed in Section I. The adequacy of the responses varies among the questions.

1. Which training components of the various training programs varied between programs and which tended to be more constant across all programs?

This question was not answered very well. Because of restrictions on the type of variables that could be used, because programs naturally had different settings, and because certain variables were constant or almost constant within programs, differences among programs tended to be obvious, spurious, or superficial. Obvious setting differences included such things as grade level taught by trainee and "ruralness" of setting. Variables constant within program included such things as a Director's reponse to a question about parental influence on the program. Programs did vary in terms of use of instructional modules and number of supervisory observations. Variables which conceivably could have dug more deeply into the training style of the programs were missed by the study. Student assessments of the programs, such as decision-making influence over the program, tended not to reveal any sharp differences, although perceptions of individualization of training did show some variation with the conventional program scoring markedly lower.

2. To what extent do trainees in the various programs differ and on which behaviors do they differ the most?

Different patterns of trainee entry characteristics were found among programs, but the differences did not seem to be very exciting, that is, the variables on which programs differed did not stimulate much speculation nor was evidence found that they were related to teaching. Trainees of the various programs differed in terms of what they reported as grade point average in their special field (but not general GPA), previous experience with children, and mother's level of education. They also differed fairly sharply on the intolerance of ambiguity scale but not on the other attitude scales.

3. Do teaching behaviors of trainees in the various programs differ and on which behaviors do they differ the most?

Trainees from the various programs significantly differed in two clusters of variables identified by the discriminant function analysis. One cluster included use of verbal "direct" influence, pupil-initiation or free expression of comments, presentation of ideas, and principals' ratings. The other cluster included observed pupil attention to task (which overlapped with the first cluster), use of verbal indirect influence, and having pupils work individually (but not in small groups).

The two clusters most distinguished the Early Childhood 1070, Auburn, and Everett Turnabout programs from the Conventional and Teacher Corps programs. The Teacher-Researcher program had an unique position among the seven programs in relation to these variables.

The teaching differences among programs may have been a function of grade level taught (or possibly other setting variables) as much as anything, and there was no way in which the grade level variable could be partialled out, for training variables themselves likely were related to grade level. Nevertheless, at least the possibility remains that training variables independent of grade level--and possibly not captured in this study--did in fact influence different teaching behavior.

4. To what extent are teaching behaviors predictable from characteristics of trainees as they enter the program?

They aren't.

At least no composite pattern derived from those teaching variables included in the study was found to be significantly related to any composite of entry characteristics included in the study.

5. Which teaching behaviors, if any, can be found to be associated with and thereby possibly sensitive to training variables, either independent of or in combination with various entry characteristics?

While a composite of teaching characteristics was found to be moderately predictable either from a composite of programs and setting characteristics or from knowledge of group membership, factor analysis revealed little clustering of specific teaching variables with specific training variables. The setting characteristic of grade level was found to be related to some teaching variables, and where there was a slight tendency for other program variables to be related, common association with grade level is one of the more plausible interpretations. Teaching variables having to do with verbal interaction, time spent on procedure versus substance, pupil attention, and certain types of class organization were associated with at least some program and setting variations. Variables having to do with cognitive level, as imperfectly measured, were not noticeably related to anything in the study.

6. Which training variables were associated with the greatest variation in teaching behavior?

The variable of grade level taught entered in strongly to the best equation for predicting a composite of teaching variables. Other variables which had quite modest associations with the teaching behavior composite included use of training modules, individualization of training as perceived by trainees, and reported proportion of disadvantaged children. Of these only use of modules was a training characteristic as opposed to a setting variable, and the use of modules appeared to have a more or less chance coincidence with those setting variables which more likely affected performance. Any single training variable that had a strong impact on teaching behavior was missed by this study.

Final Remarks:

This project demonstrated that a multivariate analysis of different teacher education programs was at least possible. But it was no picnic. Difficulties abstractly conceived at the outset were more than imaginary. Frequent use of the computer had been expected, for instance, but not 261 machine entries by January 1, 1973. Most major difficulties seemed to be of three kinds. One was the sheer effort required to cope with the procedures for collecting a large amount of data from different programs in different schools as much as 120 miles apart. This difficulty contributed to a low number of subjects to number of variables ratio (causing analytical problems), to possibly increased sources of error (both random and systematic), and to lack of time to devote to other matters, such as proper development of some measures. Second, there were difficulties in readying data and programs for multivariate analysis--accentuated by the lack of complete information on some subjects and the requirement for compensation through averaging. Third, important variables were probably emasculated. The emasculation came from the requirement that no variable could be program-specific and from the logistic limitations on data gathering.

Multivariate analysis could very well discern useful patterns and relationships in teacher education beyond anything found in this study--and this study was undertaken with the idea that successive attempts would probably be necessary before the investigation began to tune in on the more significant things. Before this can be done, this project's experience would suggest that certain matters be accomplished as necessary or facilitating conditions: First, data gathering should be more institutionalized and routine. Second, flexible procedures for data processing, storage, and ready retrieval--preferably in an on-line computer system--should be worked out in advance. This would include ready substitution of averages for missing data. Third, either efforts should be devoted toward finding more penetrating measures--including measures on pupil reaction and growth--that can at the same time be applied equally well to different programs or the next multivariate efforts should be limited to one or a few very similar programs. The heterogenity of the programs, particularly in regard to variables such as grade level, appeared to provide a sufficiently diverse mix to strain comparative study within a single framework, even a complex multivariate framework, given the measures that were possible. A subsequent study might investigate relationships within a few adjacent grades rather than over a range of thirteen grade levels. This project in and of itself failed to suggest that the most important training characteristics of different programs can be meaningfully compared in terms of associations with teaching behavior, and it was unable to attack the matter of pupil learning as a function of teacher training. The project by no means indicated that multivariate analyses are invalid for teacher education, but it did suggest that repeated efforts, greater commitment of resources, and a more limited scope may be necessary conditions for useful results. It could serve as a helpful first step in a more successful sustained effort.

APPENDIX A_1

Index of Variables with Indication of

Measurement and Data Processing Procedures

In addition to variables on which data were collected, this index includes some variables proposed for the study originally but later omitted for one reason or another.

Variables are grouped into three series: "E" for entry characteristics, "P" for program and setting characteristics, and "T" for teaching and exit characteristics. Decimals are used as an aid for indicating breakdowns of general variables. A zero after a decimal, such as P3.0, indicates a generalized variable; usually there is no direct measure of such. Measures of one or more facets are usually coded with a numeral other than zero after the decimal, and more specific variations of measures by two numerals after the decimal, such as T2.63. With each code is a description of the measurement, scoring, and transformation procedure, if any; an indication of the data collection procedure coded wording to the following key; and often another acronym (in parentheses after the code number) as a possible aid to the reader when examining the table of results so that he may not have to refer back and forth quite so often.

Data collection was by six different procedures, indicated in this index as follows:

ETQ - Questionnaire and information form completed by trainee (usually) shortly after entrance to the field component of his training program

INT - Interview of subject trainee, cooperative teacher, and/or building principal

PD - Interview of director of particular training program and/or college supervisor

OBS - Classroom observation when trainee was teaching

PR - Rating of trainee by building principal

PTQ - Questionnaire completed by trainee around time of completion of his training program

Descriptive summary statistics for the variables in this index are included in Appendix B. The summary statistics there are given for all subjects combined from all programs and for subjects within each program.

ENTRY CHARACTERISTICS

E1.0 Scholastic Aptitude. No data compiled, despite original intentions, for reasons of lack of commonality or unavailability of data on subjects plus anticipation of difficulties and time costs of subjects were to be tested during the study.

E2.0 Sex. For data processing and analysis, male subjects were scored "1" and females "2."

E3.0 Scholastic Achievement.

- E3.1 (GPA-G) General. ETQ Self-reported GPA for all college work as remembered and estimated by subjects.
- E3.2 (GPA-Sp) Special Field. ETQ Self-reported GPA as remembered for subject's major field in college.
- E3.3 (GPA-LB) "Late-blooming." ETQ Self-reported GPA as remembered for last year of college prior to entry to training program.

E4.0 Undergraduate vs. Graduate Status

- E4.1 (Grad) Undergraduates scored "1", all post-Baccaleureates scored a "2."
- E4.2 (Grad) Undergraduate "1," post-Baccaleaureate but not Master's candidates "2," Master's degree candidates "3."

E5.0 Experience working with Children prior to Teacher Training. Estimated amount and kind of experience reported on ETQ and subsequently rated on 4 or 5 point scale. To determine scale for each, reported hours times weeks times years produced product which was then placed in frequency distribution. Divisions of distribution into five then made on basis of eyeball analysis.

- E5.1 (BabyS) Babysitting type of experience (2000=5; 1-100=2; 0=1)
- E5.2 (Church) Church group, Sunday School type of experience (1000=5; 1-100=2)
- E5.3 (Rec) Recreation program, camp type of experience (1000=5; 500-1000=4; 1-150=2)
- E5.4 (Therap) Therapeutic, remedial, and other types of experience (1-100=2; 1000=5)
- E5.5 (CompEx) Composite experience rating; summation of 5.1-5.4

E6.0 Social Class Background

- E6.1 (FOup) Father or legal guardian's occupation during subject's junior high school age reported on ETQ and subsequently rated for prestige according to scale from Robert Hodge et al, "Occupation Prestige in the U.S. 1925-63," Class, Status, and Power, R. Bendix (ed.)
- E6.2 (MothEd) Mother's education reported on ETQ, 7-point scale ranging from highest level of less than 8th grade (=1) to graduate degree (=7)

E7.0 Attitudes toward Teacher Training.
E7.1 (ATTP) Sum of 7 Likert-type items, an ETQ, items derived by project staff. Also coded P19.17.

E8.0 Tolerance of Ambiguity
E8.1 (TA) Sum of 16 Likert-type items on ETQ entitled opinion Inventory A, items taken from Robinson and Shaver (1969).* Low scores indicate high tolerance.

E9.0 Social Activism, Political-Economic Attitudes
E9.1 (Pol-Ec) Sum of 14 Likert-type items on ETQ entitled Social Attitudes A, items devised by project staff and also taken from Robinson and Shaver (1969). High scores indicate high activism.

E10.0 Social Responsibility Scale
E10.1 (SRS) Sum of 8 Likert-type items on ETQ entitled Social Attitudes B, items taken from Robinson and Shaver (1969). High scores indicate high responsibility.

E11.0 Dogmatism
E11.1 (SDogm) Sum of 20 Likert-type items on ETQ taken from Score on short form of Rokeach's Dogmatism Scale, appearing as 20 Likert-type items on ETQ and entitled Opinion Inventory B. High scores indicate high dogmatism.

E12.0 "Willingness to Tackle Problems and Desire to do a Good Job in Solving Them"
E12.1 (Clus1) First cluster of items appearing from cluster analysis of all items in previous fine scales (E7.1 to E11.1). Sum of 20 item scores (identification of items and description of cluster analysis in Appendix C). High scores indicate high willingness and desire to do a good job.

E13.0 "Inequities and Regimentation of contemporary society and the desire of the Individual for Self-Expression through varied opportunities"
E13.1 (Clus2) Second appearing cluster of items from five opinion scales on ETQ. Thirteen items (Appendix C). High scores indicate belief inequities and regimentation is high.

E14.0 "Negative Aspects and Feelings about Interaction with other people and their ideas"
E14.1 (Clus3) Third appearing cluster from opinion items in ETQ scales. Eight items (Appendix C). High scores

*John P. Robinson and Phillip R. Shaver, Measures of Social Psychological Attitudes, Ann Arbor: Institute for Social Research, Univ. of Michigan (1969).

indicate negative feelings.

E15.0 "Dichotomization of Situation into Right vs. Wrong and the Desire for help from Superiors in Resolving these Situations"
E15.1 (Clus4) Fourth appearing cluster from opinion items in ETQ scales. Ten items (Appendix C). High scores indicate tendency to dichotomize.

E16.0 Previous participation in Campus Activities. Ratings based on hours of participation in various activities and on leadership portions in activities reported on ETQ.
E16.11 (AthAc) Reported participation in all athletics (Quarter X hours) rated from 1 to 4 (0-1=1; 2-10=2; 11-50=3; 50=4).
E16.12 "2" if leadership in athletics reported, "1" otherwise.
E16.21 (BTeam) Reported participation in "big-time" team sports rated 1 to 4.
E16.22 "2" if leadership in team sports reported, "1" otherwise.
E16.31 (LTeam) Reported participation in other team sports rated 1 to 4.
E16.32 "2" if leadership in other team sports reported, "1" otherwise.
E16.41 (ISpor) Reported participation in individual sports rated 1 to 4.
E16.42 "2" if leadership in individual sports reported, "1" otherwise.
E16.51 (Mus) Reported participation in musical activities (0-1=1; 50=5).
E16.52 "2" if leadership in musical activities reported, "1" otherwise.
E16.61 (Spch) Reported participation in speech (drama, forensics) activity, as rated (50=4).
E16.62 "2" if leadership in speech activities reported, "1" otherwise.
E16.71 (Polit) Reported participation in political activities as rated (0=1; 1-10=2; 50=4).
E16.72 "2" if leadership role in politics reported, "1" otherwise.
E16.81 (SocAct) Reported participation in social activities, as rated (25=4).
E16.82 "2" if leadership role in social activities reported, "1" otherwise.
E16.91 (SGovt) Reported participation in student government, as rated (25-50=4; 50=5).
E16.92 "2" if leadership role in student government reported, "1" otherwise.
E16.01 Reported participation in "other" activities, as rated (25=4)
E16.02 "2" if leadership in "other" activities reported, "1" if not.

E17.0 Age. Year of birth reported on ETQ and subtracted from 1972.

PROGRAM AND SETTING CHARACTERISTICS

P1.0 Age and Level of Children

P1.1 (GrLvl) Grade level taught by subject, recorded on INTV, not transformed (K=0); averaged if necessary for more than one class taught.

P2.0 Disadvantaged and Minority Children Setting, INTV

P2.1 Minority Children

P2.11 (Blac) Reported % of Blacks (including average if any)

P2.12 (AmInd) Reported % of Indians

P2.13 (MexAm) Reported % of Mexican-Americans

P2.14 (Minrty) Total of 2.11, 2.12, and 2.13

P2.15 Classification of person who provided information for P2.1 (1=Principal, 2=Cooperative Teacher, 3=Trainee, 4=College Supervisor, 5=Other, 6=Multiple Sources)

P2.2 (Disadv) Economically Disadvantaged Children as Reported. Criterion somewhat fuzzy, but free hot lunch eligibility used as suggested indicator.

P2.21 (RurlP) percentage in class reported by principal (averaged for subject who taught more than one class).

P2.22 (RurlC) percentage in class reported by cooperating teacher (averaged for classes).

P2.23 (RurlT) percentage in class reported by trainee (averaged for classes).

P2.24 (RurlM) percentage in class reported from any source or averaged for combination of sources.

P2.25 percentage in class reported by any of above or averaged of above.

P3.0 Rural vs. Urban Setting

P3.1 Portion of children reported to live in rural areas.

P3.11 (RurlE) self-evident

P3.12 (RurlC) reported by cooperating teacher

P3.13 (RurlP) reported by principal

P3.14 (RurlT) reported by trainee

P3.15 (Rurl) combination of sources

P3.16 figure reported by any one of 3.11 to 3.14 or average of any conflicting reports.

P3.2 Determination of type of area where remaining portion of children live.

P3.21 Classification of remaining portion as "small town" (=1), "suburban" (=2), or "urban" (=3)

P3.3 Generated variables combining information from P3.1 and P3.2

P3.31 (Urban) One minus portion in P3.15 times 2 if small town, 4 if suburban, and 5 if urban.

P4.0 Training by Instructional Modules (Learning Packages)

P4.1 Number of modules examined (either studied thoroughly or just moderately examined by trainee).
- P4.11 (MdulT) Reported by trainee. INTV.
- P4.12 (MdulPD) Reported by program director or supervisor. PD.
- P4.13 Resolution of 4.11 and 4.12 if different. (Not yet devised).

P4.2 Number of modules worked through (criterion tests taken or studied thoroughly).
- P4.21 (CMdlT) Reported by trainee
- P4.22 (CMdlPD) Reported by program director
- P4.23 Resolution of 4.21 and 4.22 if different (not yet devised).

P5.0 Program Field-Centeredness

P5.1 (FldCr) Number of education courses credits earned off-campus.
- P5.11 Reported by trainee
- P5.12 Reported by program director

P5.2 (FldQ) Number of quarters spent off-campus, including fractional quarter for September pre-fall quarter experience if reported.

P6.0 Local Control of Program

P6.1 Reported influence by teachers' associations. Six point scale ranging from 1="no influence" to 6="more influence than anybody else."
- P6.11 (LocalT) reported by trainee or cooperating teacher or principal. INTV.
- P6.12 (LocalP) reported by program director or supervisor. PD.

P6.2 Reported influence by parents' group. Same six point scale as P6.1.
- P6.21 (ParnD) reported by trainee, cooperating teacher, or principal. INTV.
- P6.22 (ParnT) reported by program director or supervisor. PD.

P7.0 Amount of Teaching Responsibility Given Interns (Data not obtained in study).

P8.0 Amount of Microteaching.

P8.1 Number of episodes reported (broad definition).
- P8.11 (McroT) by trainee, INTV.
- P8.12 (McroD) by project director. PD.

P8.2 Number of episodes reported by project director using strict definition of microteaching. PD.

P9.0 Philosophy of Project Staff (Not obtained in study).

P10.0 (Omitted).

P11.0 College Supervision.

P11.1 Observations (coupled with post-conference) by college supervisor.

P11.11 (SuprT) as reported by trainee
P11.12 (SuprS) as reported by project director or supervisor
P11.13 any resolution of 11.11 or 11.12 (not yet devised for study).

P11.2 Observations preceded by pre-conference
P11.21 reported by trainee
P11.22 reported by project director

P11.3 Any reports of conferences with cooperating teacher
P11.31 reported by trainees
P11.32 reported by project director

P12.0 Trainee Choice over Program Content and Objectives. INTV.
P12.1 (Choice) As perceived by trainee (INTV) using same six point scale as in P6.0.
P12.11 Over substantive content of courses
P12.12 Over student teaching assignment
P12.13 Over tasks and duties
P12.14 Over content of study of education during student teaching
P12.15 Over trainee evaluation
P12.16 Average or total
P12.17 Some other composite of P12.11 to P12.15.

P13.0 Experience of Cooperating Teacher with Student Teachers
P13.1 (CTExp) Number of student teachers previously supervised by cooperating teacher as reported (9 maximum). INTV.

P14.0 Attitudes of School Personnel Toward Professional Educating
P14.1 Cooperating teacher attitudes
P14.11 to 14.14 Responses to items 13e and 13d (7-point scale) on interview. Responses averaged if more than one respondent.

P14.15 (SchATT) Total of responses 13a to 13d averaged for more than one teacher if necessary.

P14.2 Building principals' attitudes
P14.21 to 14.24 Responses by principal to items 13a to 13d on INTV.
P14.25 Total of responses to same items.
P14.3 Composite of School Personnel of P14.11-P14.15 and P14.21-P14.25 series if data obtained for both; otherwise just repeat of values for one or other.

P15.0 Individualization of Teacher Training.
P15.1 (IndTT) Response to question 12 on INTV by trainee--trainee perception.
P15.2 Response to question about importance of feature by Project Director or Supervisor.

P17.0 Rated Effectiveness of Cooperating Teachers by Project Director or College Supervisor on 5 point scale (1=lowest; 5=highest). PD.
- P17.1 (CoopT) Rated specifically for subject trainee
- P17.2 Rated in general for any trainee
- P17.3 Total of 17.1 and 17.2

P18.0 Conformite of Program to ComField Lab-Practicum (No data obtained)

P19.0 Attitude Toward Training Program
- P19.1 (AttP) Response on ETQ by trainee.
  - P19.11 to 19.16 items on ETQ
  - P19.17 total of 19.11 to 19.17 (Duplicate of E7.1)
- P19.2 Attitude on Exit Questionnaire by trainee.
  - P19.21 to 19.26 same items on PTQ. Items 50, 51, 52, 53(R), 54(R), 55, 56
  - P19.27 total of 1921 to 19.26
- P19.3 Change 19.17 to 19.27

TEACHING VARIABLES

(Also termed "Exit" Variables in Some Descriptions of the Study)

Most variables in this group (T2.0 through T9.0) were based on classroom observations of the subjects. The measurement procedure consisted, first of all dividing the first four minutes into 30-second time segments. For each time segment, symbols were entered for (a) instructional grouping (LP = formal presentation such as film, L = whole group discussion or informal lecture, S = small group activities, i = pupils working as individuals on projects or seatwork), (b) verbal utterances according to modified categories from Flanders' interaction analysis[1]: indirect influence, extended indirect (six seconds or longer), direct and extended direct (direction or criticism), and pupil-initiated or free comments, both short and extended, and (c) questions or problems to which pupils were expected to respond partially according to the cognitive Taxonomy of Educational Objectives (Bloom et al, D. McKay Co., 1956), namely, K = knowledge or memory, C = comprehension, A = application or analysis, S = synthesis and E = evaluation. Then, pupils were scanned one by one and rated on overt estimated attention to task on a five point scale (0 = extreme avoidance or disruptive behavior, 4 = intense, emotionally-tinged attention) with average of pupils later computed. These two procedures were then repeated twice. Following this, the class was rated on individualization of instruction and four adjective pairs and additionally certain comments about materials and methods were sometimes added. Preparation of much of this data for analysis frequently involved formation of ratios and then averaging across observation for a subject as noted below. Most subjects were observed three times with the observations typically divided between two or three observers. One key problem of observing and obtaining accurate data was the difficulty in making the cognitive classification procedure (T4.0 variables) applicable and consistent both for whole-class arrangements and for individualized learning station arrangements. There is little confidence that this problem was adequatly solved for this study.

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[1] Description of the systems are in several sources including Ned. A. Flanders, Analyzing Teaching Behaviors, New York: Addison-Wesley Co. (1970).

T1.0 General Assessment of Trainee's Quality by Building Principals

T1.1 (PrinR) Total of 3 items. PR. Three individual items (T1.11, T1.12, T1.13) responded to by building principal. Each item has five scaled responses and involves a slightly different facet.

T2.0 Variety of Verbal Interaction Patterns using modification of Flanders' categories each variable is an average across observation per subject.

T2.1 Use of Indirect Influence-Ratios (Indirect plus extended indirect)

T2.11 Indirect time segments over formal presentations (LP) time segments.

T2.12 (VIndL) Indirect time segments over time segments when class was operating as a whole group (L).

T2.13 (VIndS) Indirect time segments over time segments when class was operating as in small groups (S).

T2.14 (VIndI) Indirect time segments over time segments when pupils were working as individuals (i).

T2.15 (VIndE) Indirect time segments over time segments when interaction was an expected part of the classroom activity.

T2.16 (VIndT) Indirect time segments over total time segments.

T2.2 Use of extended indirect influence (spoken for six seconds or longer).

T2.21 to T2.25 (XInd) Time segments during which extended indirect occurred over time series of denominators as for T2.1 series.

T2.3 Use of direct influence (direct plus extended direct), namely directions or criticism.

T2.31 to T2.36 (VDir) Time segments during which direct statements occurred over same series of denominators as for T2.1.

T2.4 Use of extended direct influence (six seconds or longer)

T2.41 to T2.46 (XDir) Time segments during which extended direct occurred over same denominators as T2.1

T2.5 Occurrences of "Pupil-Initiated" Comments (short plus extended). Category "9" in Flanders' categories.

T2.51 to T2.56 (Pup) Time segments during which this occurred over same denominators as T2.1

T2.6 Occurrences of Extended Pupil-Initiated Comments

T2.61 to T2.66 (XPup) over same denominators as T2.1

T2.7 Extended Explanation or Information Presentation by Teacher (six seconds or longer).

T2.71 to T2.76 (VInf) time segments over same denominators as T2.1.

T3.0 Use of Whole Class Group vs. Individual or Small Group Activities. Averaged across Observation per Subject.

T3.1 (S+i/T) S + i segments over total time segments recorded.

T3.2 (L/T) L segments over total time segments.

T3.3 (i/T) i segments over total time segments.

T3.4 (S/T) S segments over total time segments.

T4.0 Cognitive Level of Expected Classroom Work, All Variables are Averages of Observation per Subject.

T4.1 Above knowledge question usage. Question defined as any problem to which pupils were expected to respond.

T4.11 (CogQ) Ratio of time segments during which comprehension, application-analysis, synthesis and/or evaluation level questions were asked to time segments any question was asked.

T4.12 Same numerator as T4.11 with total time segments observed as denominator.

T4.2 Above comprehension question usage

T4.21 (HCogQ) Same ratio as 4.11 except that comprehension only time segments dropped from numerator.

T4.22 Same as T4.21 except total time segments as denominator.

T4.3 Usage of any questions

T4.31 (Ques) Ratio of time segments during which questions asked to total time segments observed.

T4.4 Emphasis on Procedures.

T4.41 (Proc) time segments procedural questions or no questions asked over total time segments.

T4.42 Variable on cognitive versus procedural segments lost because of technical difficulties.

T4.43 procedural--no question time segments over i + S time segments plus 1.

T5.0 Pupil Attention, Observed

T5.1 (Atten) Average of pupil attention scan ratios (average for each observation averaged for all observations)

T5.2 (HAtten) Highest pupil attention score for each observation averaged across observations.

T6.0 Observed Individualization of Instruction by Trainee.

T6.1 (IndvI) As rated by observer on 5 point scale averaged across observations, minimal specification of "Individualization" provided observers.

T7.0 Adjective Pairs: Rating of Classroom Climate and Teacher Behavior by observer. Averaged across observations for each subject. Seven point scale for each item with high scores reflecting favorable ratings.

T7.1 (Mgmt) Class Management rating.

T7.2 (Dull) Dull to stimulating.

T7.3 (Systm) Disorganized to systematic.

T7.4 (Harsh) Harsh to kind.

T8.0 Variety of Methods: Occurrence of Unusual Methods

T8.1 Unobtained rating of observer comments.

T9.0 Variety of Materials.

T9.1 Unobtained rating of observer comments.

T10.0 Commitment to Teaching.

T10.1 (Commt) Sum of 2 7-point Likert items on PTQ (Items 46 and 47, both reverse scored). High scores show high commitment.

T11.0 Pupil-Centered Problem Solving Behavior Tendencies by Teacher

T11.1 Teaching Situation Reaction Test. Low scores show high pupil-centered problem-solving tendencies.

APPENDIX A2

PERSONALITY-ATTITUDE SCALES GENERATED FROM MEASURES USED IN THE MATE STUDY

The following description of a cluster analysis is an example of the type of correlation data being developed and analyzed currently by the MATE study. These techniques will be used in the same manner in this proposed study.

Three of the four referenced scales in the overall teacher opinion and attitude survey are standard psychological instruments. These were the tolerance of ambiguity scale, the political and economic attitudes scale, the social responsibility scale and the Rokeach short form dogmatism scale.

The political and economic scale was supplemented with our own items to measure current political activism. The fourth scale, opinions about teacher training, was developed by Burton Grover for the MATE study. The following then is an example of one type of uage of this data.

A cluster analysis was performed on the 67 items of the attitude scale. Clusters of items were formed in such a manner that the average correlation among items in a cluster was twice that of the average correlation of the items inthe cluster with those not in the cluster.

The first cluster contained 20 items, four from the teacher training scale (TT), five from the tolerance of ambiguity scale (TA), six from the political and economic attitudes scale (PE), three from the social responsibility scale (SR) and two from the Rokeach dogmatism (RD) scale.

These items can be grouped under the heading "willingness to tackle problems and desire to do a good job in solving them." Seven items dealt specifically with doing the best possible job, six with the possibility of more than one aspect to a problem and solution to it and six with the legitimate manner of solving problems.

The second cluster of items contained B items, eight from the PE scale and five from the TA scale. All items easily fall under the heading of "inequities and regimentation of contemporary society and the desire of the individual for self expression through varied opportunities." Nine of the items deal specifically with society; its inequities and regimentation, the other five with desire for self expression in various ways.

The third cluster comprised eight items, one from the TT scale four from the SR scale and three fromthe RD scale. These can all be grouped under the heading "negative aspects and feelings about interaction with other people and their ideas." Six of the items dealt with interaction with people alone, three with people and ideas.

The fourth cluster was made up of ten items. Two of these were from the TA scale and eight from the RD scale. The general heading for this

cluster would be "dichotomization of situations into right vs. wrong and the desire for help from superiors in resolving these situations." Six items were specific in reference to dichotomizing and four were specific in the desire for help from superiors.

The remaining 16 items did not readily fall into any cluster or set of clusters. These, therefore, did not correlate any higher among any subset of themselves than among all themselves.

--Jerry King

ORIGINAL SCALE

OTT - Opinions about Teacher Training Program
TA - Tolerance of Ambiguity
P-E - Political and Economic Attitudes Scale
SRS - Social Responsibility Scale
RD - Rokeach's Dogmatism Scale (Short Form)

FIRST CLUSTER

Original Scale	Item
OTT	I am confident that the training program in which I am enrolled will be doing a good job in preparing me to teach.
OTT	If I had to do it over again, I would enroll in the same teacher training program.
OTT	The instructors and teachers in my teacher education program have generally been very competent.
OTT	So far in my education training, I have learned about things that are relevant to current problems in American Education.
SRS	It is the duty of each person to do his job the very best he can.
SRS	I feel very bad when I have failed to finish a job I promised I would do.
TA	A good teacher is one who makes you wonder about your way of looking at things.
SRS	Every person should give some of his time for the good of his town or country.
RD	My blood boils whenever a person stubbornly refuses to admit he's wrong.
TA	Often the most interesting and stimulating people are those who don't mind being different and original.
PE	Generally, the government does a good job in protecting our self-interest.
RD	It is only when a person devotes himself to an ideal or cause that life becomes meaningful.
P-E	Anyone who violates the law for reasons of conscience should be willing to accept the legal consequences.
P-E	There are legitimate channels for reform which must be exhausted before attempting disruption.

P-E	Traditions serve a useful social function by providing stability and continuity.
P-E	In the long run, it is possible to get more done by tackling small, simple problems rather than large and complicated ones.
TA	People who insist upon a "yes" or "no" answer just don't know how complicated things really are.
TA	I would like to live in a foreign country for a while.
P-E	A problem with most older people is that they have learned to accept society as it is, not as it should be.
P-E	In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.

SECOND CLUSTER

P-E	In order to achieve what we need in our society, the system has to be drastically changed.
P-E	Basically, the values of the establishment are hypocritical.
P-E	In practice the rich and the poor are not equal before the law.
P-E	Society should be quicker to throw out old ideas and traditions and to adopt new thinking and customs.
P-E	The structure of our society is such that self-alienation is inevitable.
P-E	The bureaucracy of American society makes it impossible to live and work spontaneously.
P-E	While man has great potential for good, society brings out primarily the worst in him.
P-E	True democracy is limited in the United States because of the special privileges enjoyed by business and industry.
TA	Many of our most important decisions are based upon insufficient information.
TA	People who fit their lives to a schedule probably miss most of the joy of living.
TA	Teachers or supervisors who hand out vague assignments give a chance for one to show initiative and originality.
TA	It is more fun to tackle a complicated problem than to solve a simple one.

TA	I like parties where I know most of the people more than ones where all or most of the people are complete strangers.

THIRD CLUSTER

SRS	It is no use worrying about current events or public affairs; I can not do anything about them.
SRS	People would be much better off if they could live far away from other people and never have to do anything for them.
SRS	Letting your friends down is not so bad because you can't do good all the time for everybody.
RD	Most of the ideas which get printed nowadays aren't worth the paper they are printed on.
SRS	Our country would be a lot better off if we didn't have so many elections and people didn't vote so often.
OTT	An expert who doesn't come up with a definite answer probably doesn't know too much.
RD	To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.
RD	Most people just don't know what's good for them.

FOURTH CLUSTER

TA	The sooner we all acquire similar values and ideals the better.
RD	Of all the different philosophies which exist in this world: there is probably only one which is correct.
RD	I'd like it if I could find someone who could tell me how to solve my personal problems.
RD	There are two kinds of people in this world.
RD	Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.
RD	Most people just don't give a "damn" for others.
RD	The present is all too often full of unhappiness. It is only the future that counts.
TA	A good job is one where what is to be done and how it is to be done are always clear.

RD Man on his own is a helpless and miserable creature.

RD The highest form of government is a democracy and the highest form of democracy is a government run by those who are the most intelligent.

REMAINING ITEMS

So far in my education training, I have learned little of any practical value for teaching.

I would know much more about teaching methods than I do now if I were in a better training program.

It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.

In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.

It is better to be a dead hero than to be a live coward.

The main thing in life is for a person to want to do something important.

The United States and Russia have just about nothing in common.

APPENDIX B_1

DESCRIPTIVE STATISTICS

Descriptive statistics are presented for several variables in this appendix. Statistics include mean, standard deviation, and number of subjects for individual programs and for all programs combined. Also given for some variables is a correlation ratio, eta squared ( ), indicating proportions of total variance associated with differences among training programs (groups of trainees in different programs) as opposed to variance associated with differences between individual subjects in their programs.

Appendix A provides some description of the variables and the same codes and acronyms by which variables are identified here.

VARIABLES		TRAINING PROGRAMS								
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conven-tional	Turn About	OVERALL	η^2
E 2.0 (Sex)	F	7	11	18	10	6	11	11	74	
	M	5	7	00	10	9	6	4	41	
E 3.1 (GPA-G)	$\bar{x}$	2.99	3.04	2.97	3.08	2.93	3.00	2.95	3.00	.075
	s	.36	.40	.30	.34	.46	.28	.47	.38	
	n	11	15	15	18	12	16	12	98	
E 3.2 (GPA-Sp)	$\bar{x}$	3.49	3.17	3.03	3.37	2.94	3.25	3.81	3.29	.371
	s	.45	.39	.29	.48	.49	.25	.28	.47	
	n	10	12	13	14	11	16	12	87	
E 3.3 (GPA-LB)	$\bar{x}$	3.30	3.12	3.20	3.14	3.13	3.10	3.11	3.15	.090
	s	.47	.37	.34	.47	.47	.33	.42	.42	
	n	12	12	12	15	11	16	9	86	
E 4.2 (Grad)	$\bar{x}$	1.92	2.93	1.18	2.98	1.08	2.94	3.00	2.34	.872
	s	.28	.25	.38	.45	.28	.24	0	.85	
	n	12	15	17	19	12	16	14	104	
E 5.1 (Baby S)	$\bar{x}$	1.67	3.20	1.82	2.16	1.25	2.19	2.71	2.18	.337
	s	1.18	1.60	1.04	1.39	.60	1.38	1.39	1.41	
	n	12	15	17	19	12	16	14	104	
E 5.2 (Church)	$\bar{x}$	1.50	1.27	1.88	1.37	1.25	1.31	1.93	1.51	.268
	s	1.12	.77	1.13	.67	.60	.85	1.22	.97	
	n	12	15	17	19	12	16	14	104	
E 5.3 (Sec)	$\bar{x}$	2.58	1.40	1.00	1.63	1.42	1.38	1.29	1.58	.206
	s	1.61	.88	0	.93	1.11	1.36	1.03	1.16	
	n	12	15	17	19	12	16	14	104	

VARIABLES		TRAINING PROGRAMS								
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	η^2
E 5.4 (Theran)	$\bar{x}$ s n	2.75 1.69 11	1.40 .80 14	1.35 .76 16	1.47 .82 18	2.00 1.03 11	2.13 1.41 15	1.23 1.33 13	1.62 1.23 104	.183
E 5.5 (CompEx)	$\bar{x}$ s n	8.50 2.81 12	7.27 2.17 15	6.06 1.33 17	6.63 2.01 19	5.92 1.98 12	7.50 2.74 16	7.86 2.95 14	7.09 2.50 104	.149
E 6.1 (FOccp)	$\bar{x}$ s n									
E 6.2 (Moth Ed)	$\bar{x}$ s n	4.91 1.38 11	3.62 1.85 13	3.31 1.25 16	3.94 1.35 18	2.75 .85 12	3.88 1.20 16	3.23 .60 13	3.66 99	
E 8.1 (TA)	$\bar{x}$ s n	51.67 7.77 12	50.33 8.00 12	56.38 7.91 16	52.22 10.15 18	48.17 9.74 12	57.19 6.94 16	60.57 7.11 14	54.10 9.27 99	.243
E 9.1 (Pol-Ec)	$\bar{x}$ s n	59.25 7.61 12	60.42 3.43 12	61.00 6.80 16	60.61 3.88 18	60.75 8.52 12	57.81 6.95 16	56.79 6.48 14	59.40 6.50 99	.086
E 10.1 (SRS)	$\bar{x}$ s n	24.58 7.79 12	25.08 3.95 12	25.13 2.60 16	25.33 4.03 18	27.58 4.65 12	26.00 4.14 16	25.21 6.31 14	25.56 5.09 99	.090
E 11.1 (Bloom)	$\bar{x}$ s n	59.33 15.98 12	59.27 8.57 11	60.94 11.99 16	61.78 9.98 18	58.50 15.03 12	60.81 10.54 16	65.21 13.93 14	60.93 12.58 98	.178

VARIABLES

TRAINING PROGRAMS

		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	η^2
E 12.1 (Clus 1)	$\bar{x}$	74.00	74.25	75.75	74.17	68.75	74.06	78.93	74.38	.171
	s	5.79	5.86	7.66	7.03	8.15	5.93	8.34	7.71	
	n	12	12	16	18	12	16	14	99	
E 13.1 (Clus 2)	$\bar{x}$	48.75	50.83	50.31	49.94	49.42	48.38	45.93	49.06	.094
	s	4.99	3.89	5.44	3.66	6.24	6.56	4.74	5.29	
	n	12	12	16	18	12	16	14	99	
E 14.1 (Clus 3)	$\bar{x}$	25.50	28.25	25.38	25.28	28.92	27.94	27.21	26.80	.149
	s	4.33	4.30	4.20	3.81	5.38	3.60	5.19	4.62	
	n	12	12	16	18	12	16	14	99	
E 15.1 (Clus 4)	$\bar{x}$	34.25	34.42	34.44	39.72	34.33	34.94	37.86	35.32	.250
	s	6.55	5.92	6.89	6.62	9.04	5.57	6.66	6.92	
	n	12	12	16	18	12	16	14	99	
E 16.11 (AthAc)	$\bar{x}$	4.58	3.73	3.12	3.79	4.50	4.00	6.21	4.21	.137
	s	1.75	.85	.32	1.00	2.06	.94	7.78	3.20	
	n	12	15	17	19	12	16	14	104	
E 16.21 (BTeam)	$\bar{x}$	1.08	1.00	1.00	1.00	1.08	1.13	1.00	1.04	.097
	s	.28	0	0	0	.28	.33	0	.19	
	n	12	15	17	19	12	16	14	104	
E 16.31 (LTeam)	$\bar{x}$	1.50	1.00	1.00	1.26	1.58	1.25	1.36	1.26	.131
	s	.87	0	0	.55	1.04	.75	.81	.69	
	n	12	15	17	19	12	16	14	104	
E 16.41 (ISpor)	$\bar{x}$	1.33	1.20	1.00	1.05	1.25	1.19	1.43	1.19	.135
	s	.75	.40	0	.22	.83	.39	1.05	.61	
	n	12	15	17	19	12	16	14	104	

VARIABLES		TRAINING PROGRAMS								
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conven-tional	Turn About	OVERALL	η^2
E 16.51 (MUS)	$\bar{x}$ s n	1.75 1.15 12	1.60 .75 15	1.12 .32 17	1.47 .82 19	1.67 1.18 12	1.56 .79 16	1.93 1.03 14	1.56 .92 104	.141
E 16.61 (SPCH)	$\bar{x}$ s n	1.58 .86 12	2.20 .75 15	1.12 .32 17	1.05 .22 19	1.67 1.31 12	1.13 .33 16	1.36 .89 14	1.33 .85 104	.337
E 16.62	$\bar{x}$ s n	2.75 1.23 12	2.20 .75 15	2.06 .24 17	2.11 0.31 19	2.50 .96 12	2.25 .56 16	2.43 .73 14	2.30 .75 104	.155
E 16.71 (POLIT)	$\bar{x}$ s n	1.08 .28 12	1.00 00 15	1.00 00 17	1.00 00 19	1.00 00 12	1.00 00 16	1.00 00 14	1.01 .1 104	.163
E 16.81 (Soc Act)	$\bar{x}$ s n	1.58 1.11 12	1.07 .25 15	1.00 00 17	1.11 .31 19	1.25 .83 12	1.00 00 16	1.00 00 14	1.13 .53 104	.180
E 16.91 (S Govt)	$\bar{x}$ s n	1.5 .67 12								
E 16.01 (Other)	$\bar{x}$ s n									
E 16.12	$\bar{x}$ s n									

VARIABLES

TRAINING PROGRAMS

VARIABLES		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	η^2
E 17.0 (Age)	$\bar{x}$	31.00	22.33	33.82	23.37	26.15	23.50	28.36	26.78	
	s	9.03	2.09	7.67	5.95	3.76	6.00	11.25	7.97	.268
	n	12	15	17	19	13	16	14	106	
P 1.1 (GR LVL)	$\bar{x}$	3.63	5.26	2.20	6.75	5.60	5.91	1.53	4.33	
	s	1.78	3.61	1.26	.66	1.56	2.77	1.48	2.84	.423
	n	12	17	15	8	15	17	15	99	
P 2.11 (BLAC)	$\bar{x}$	00	.15	00	00	00	.00	.02	.03	
	s	00	.08	.01	00	00	00	.02	.07	.772
	n	12	17	15	8	15	17	15	99	
P 2.12 (AM IND)	$\bar{x}$	.01	.01	.05	.07	.08	.02	.05	.04	
	s	.01	.01	.08	.06	.09	.02	.04	.06	.264
	n	12	17	15	8	15	17	15	99	
P 2.13 (MEX AM)	$\bar{x}$	00	.02	.04	.03	.05	.02	.01	.02	
	s	00	.02	.05	.04	.08	.04	.02	.04	.000*
	n	12	17	15	8	15	17	15	99	
P 2.14 (MINRTY)	$\bar{x}$	.01	.18	.09	.10	.12	.04	.08	.09	
	s	.01	.09	.08	.09	.15	.04	.04	.10	.347
	n	12	17	15	8	15	17	15	99	
P 2.15	$\bar{x}$									
	s									
	n									
P 2.21 (DISADV)	$\bar{x}$	.20	.30	.12		.08	.10		.17	
	s	00	00	00		00	.01		.09	
	n	2	3	1		2	4		12	

VARIABLES		TRAINING PROGRAMS								η^2
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	
P 3.15 (RURL M)	$\bar{x}$ s n	.20 .08 2				.58 .06 3	.25 .37 5		.31 .31 11	
P 3.16 (RURL)	$\bar{x}$ s n	.78 .09 12	0 0 18	.45 .42 18	.01 .02 19	.80 .18 15	.27 .40 17	.02 .08 15	.255 .373 .102	
P 3.21	$\bar{x}$ s n									
P 3.31 (Urban)	$\bar{x}$ s n	1.84 .18 12	5.00 0 18	1.94 .17 18	3.97 .88 19	.40 .36 15	2.84 1.70 17	4.89 .39 15	3.43 3.60 102	
P 4.11 (Mdul T)	$\bar{x}$ s n	6.00 5.63 12	2.71 2.63 17	3.47 1.63 15	.13 .33 8	2.93 2.74 15	.12 .47 17	9.33 9.64 15	3.61 5.44 99	.343
P 4.12 (Mdul PD)	$\bar{x}$ s n	7.08 3.88 12	5.76 1.77 17	5.00 00 18	00 00 9	3.27 1.88 15	.13 .48 16	1.00 00 15	3.32 3.06 102	.716
P 4.21 (C Mdl T)	$\bar{x}$ s n	4.67 5.34 12	1.71 2.11 17	3.47 1.63 15	00 00 8	2.47 2.65 15	.12 .47 17	6.40 7.76 15	2.75 4.40 99	.280
P 4.22 (C Mdl PD)	$\bar{x}$ s n	7.08 3.88 12	2.65 .97 17	5.00 00 18	00 00 9	2.07 1.44 15	.13 .48 16	1.00 00 15	2.63 2.76 102	.723

VARIABLES		TRAINING PROGRAMS								
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	η^2
P 5.11 (FLD C)	$\bar{x}$	37.33	32.76	23.47	22.75	20.33	22.65	34.13	35.25	
	s	22.59	1.59	8.52	15.16	21.83	20.95	12.89	22.68	.513
	n	12	17	15	8	15	17	15	99	
P 5.12 (FLD CR)	$\bar{x}$	48.83	31.53	9.00	19.78	90.00	11.00	48.00	36.35	
	s	.55	.50	00	29.08	00	7.42	00	28.39	.907
	n	12	17	18	9	15	17	15	102	
P. 5.2* (FLD O)	$\bar{x}$	2.42	2.00	1.47	1.50	4.40	1.41	2.13	2.21	
	s	1.44	00	.62	1.00	1.45	1.33	.81	1.44	.500
	n	12	17	15	8	15	17	15	99	
P 6.11 (LOCAL T)	$\bar{x}$	1.42	1.59	1.93	2.38	2.00	1.18	1.73	1.70	
	s	.64	.91	1.12	1.41	.82	.78	1.39	1.08	.165
	n	12	17	15	8	15	17	15	99	
P 6.12 (LOCAL D)	$\bar{x}$	4.00	2.00	2.00	3.00	2.00	1.19	1.00	2.05	
	s	00	00	00	00	00	.39	00	.91	.973
	n	12	17	18	9	15	16	15	102	
P 6.21 (PART T)	$\bar{x}$	1.25	.94	1.40	1.25	1.67	1.12	1.07	1.23	
	s	.43	.42	.61	.83	.70	.68	.25	.42	.203
	n	12	17	15	8	15	17	15	99	
P 6.22 (PART D)	$\bar{x}$	1.00	00	2.00	1.00	3.73	1.19	2.00	1.75	
	s	00	00	00	00	.44	.39	00	.95	.945
	n	12	17	18	9	15	16	15	102	
P 8.11 (MICRO T)	$\bar{x}$	1.33	6.65	1.07	1.88	1.13	3.24	4.47	3.02	
	s	3.32	10.82	1.73	3.48	2.58	4.24	7.83	6.36	.152
	n	12	17	15	8	15	17	15	99	

VARIABLES		TRAINING PROGRAMS								
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	η^2
P 8.12 (MicroD)	$\bar{x}$ s n	2.00 00 12				.57 .94 15	1.31 .85 16	12.00 00 15	2.30 4.11 102	.99
P 8.2	$\bar{x}$ s n	00 00	00 00	00 00	00 00	00 00	.44 1 16	00 00	.0 .43 102	.19
P 11.11* (SupvT)	$\bar{x}$ s n	5.08 3.68 12	2.82 1.25 17		1.25 1.30 8	14.67 13.12 15	4.88 3.60 17	13.0 18.09 15	.36 84	
P 11.12* (SupvS)	$\bar{x}$ s n	11 00 12	5.06 1.83 17		9.67 13.57 9	7.00 4.03 15	7.38 1.32 16	40.00 00 15	13.43 84	
P 11.21*	$\bar{x}$ s n	1.67 2.25 12	2.35 4.83 17		.63 1.65 8	27.20 43.37 15	10.00 13.30 17	11. 25.54 15	9.74 84	
P 11.22*	$\bar{x}$ s n		1.24 1.39 17						.21 .73 102	
P 11.31* (Supv CT)	$\bar{x}$ s n	35.75 40.78 12	10.59 10.77 17		22.88 20.59 8	36.80 41.92 15	19.41 16.61 17	26.20 2.01 15	24.61 84	
P 11.32* (Supv CT)	$\bar{x}$ s n	20.00 00 12							2.35 5.44 102	

*Project 1070 excluded from data on these variables

VARIABLES		TRAINING PROGRAMS								
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conven-tional	Turn About	OVERALL	η^2
P 12.11 (Choice)	$\bar{x}$ s n	3.92 1.38 12	3.65 1.78 17	3.87 1.20 15	3.38 .99 8	3.47 1.35 15	2.53 1.58 17	3.13 1.50 15	3.39 1.53 99	.146
P 12.12 (Choice)	$\bar{x}$ s n	4.92 1.26 12	4.53 1.50 17	3.75 1.49 8	3.63 1.32 8	4.73 1.06 15	3.00 1.81 17	4.13 1.50 15	4.12 92	
P 12.13 (Choice)	$\bar{x}$ s n	4.58 .64 12	4.76 1.44 17	4.40 1.14 15	3.75 1.20 8	4.60 .88 15	3.94 1.83 17	4.67 1.19 15	4.42 1.32 99	.120
P 12.14 (Choice)	$\bar{x}$ s n	4.83 1.40 12	5.12 1.64 17	4.67 1.78 12	5.13 1.17 8	4.53 1.59 15	4.12 2.35 17	4.93 1.00 15	4.73 96	
P 12.15 (Choice)	$\bar{x}$ s n	2.75 1.09 12	2.65 1.41 17	3.33 1.30 15	3.63 .86 8	3.33 1.07 15	2.88 1.84 17	3.80 1.56 15	3.16 1.45 99	.136
P 12.16 (Choice)	$\bar{x}$ s n	4.20 .69 12	4.14 1.20 17	4.03 .77 15	3.90 .35 8	4.13 .84 15	3.29 1.45 17	4.13 .82 15	3.96 99	
P 13.1 (CT Exp)	$\bar{x}$ s n	1.92 2.14 12	6.12 4.56 17	00 00 15	3.88 7.04 8	.20 .75 15	5.18 7.96 17	5.93 9.80 15	3.41 6.33 99	.212
P 14.11	$\bar{x}$ s n	4.58 2.72 12	4.82 2.15 17		3.25 2.68 8	5.53 .62 15	5.18 1.98 17	3.27 2.98 15		

VARIABLES		TRAINING PROGRAMS								
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	η^2
P 14.12	$\bar{x}$	2 33	2 59		2 75	2 73	2 24	2 67		
	s	1 35	1 85		2 49	.68	1 48	2 67		
	n	12	17		8	15	17	15		
P 14.13	$\bar{x}$	3 17	2 76		2 63	3 93	2 94	2 27		
	s	2.11	1 80		2 55	1 48	1 86	2 57		
	n	12	17		8	15	17	15		
P 14.14	$\bar{x}$	3 42	1 53		2 50	3 20	3 12	2 27		
	s	2.60	1.14		2 12	1 83	1 78	2 54		
	n	12	17		8	15	17	15		
P 14.15 (SchAtt)	$\bar{x}$	13 50	11.71		11 13	15 40	13 47	10 47		
	s	8 20	5 31		9 36	1 82	5 34	9 94		
	n	12	17		8	15	17	15		
P 15.1 (Ind TT)	$\bar{x}$	4.00	3.65	3.93	3.38	3.80	2.53	4.27	3.64	
	s	1.58	1.28	1.06	.86	1.05	1.42	1.29	1.37	.209
	n	12	17	15	8	15	17	15	99	
P 15.2 (Ind TT)	$\bar{x}$	5.00	6.00	4.00	4.00	4.00	4.50	6.00	4.82	
	s	00	00	00	00	.00	1.12	00	.96	.798
	n	12	17	18	9	15	16	15	102	
P 16.1 (I Chal)	$\bar{x}$	18.75	17.70	17.33	20.40	16.86	14.20	16.71	17 38	
	s	1.71	2.72	2.87	.80	2.53	2.86	2.25	2.79	.321
	n	8	10	12	5	7	5	14	61	
P 17.1 (Coop T)	$\bar{x}$	3.00	4.12	00	2.89	3.27	3.75	4.60	3.60	
	s	1 35	.96	00	1.10	1.06	.83	.71	1.76	.266
	n	12	17	00	9	15	16	15	84	

VARIABLES		TRAINING PROGRAMS								
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	η^2
P 17.2 (Coop T)	$\bar{x}$ s n	2.83 1.14 12	3.82 1.10 17	00 00 00	2.89 1.10 9	3.00 .97 15	3.75 .75 16	3.87 .81 15		
P 17.3 (Coop T)	$\bar{x}$ s n	5.83 2.48 12	7.94 2.01 17	00 00 00	5.78 2.20 9	6.27 1.95 15	7.50 1.46 16	8.47 1.26 15	6.97 2.09 84	.230
P 19.17 (Att)	$\bar{x}$ s n	29.17 1.52 12	28.45 3.60 11	28.38 1.05 16	29.11 2.61 19	26.33 3.61 12	27.69 3.88 16	29.79 2.11 14	28.46 2.75 100	.037
T 1.1 (Prin R)	$\bar{x}$ s n	10.1 3.18 8	12.1 1.95 14	12.2 2.05 13	10.6 2.82 7	10.4 2.95 14	10.1 2.26 9	11.4 2.87 14	11.1 2.63 79	
T 2.12 (V Ind L)	$\bar{x}$ s n	.26 .15 10	.22 .27 15	.17 .17 16	.18 .16 8	.05 .06 10	.17 .14 13	.27 .27 13	.19 .21 85	
T 2.13 (V Ind S)	$\bar{x}$ s n	.20 .10 10	.28 .17 10	.12 .13 9	.13 .20 10	.05 .09 10	.08 .09 8	.32 .20 13	.18 .18 70	
T 2.14 (V Ind I)	$\bar{x}$ s n	.33 .27 10	.23 .27 11	.18 .19 14	.18 .13 13	.10 .08 15	.13 .16 10	.20 .18 13	.19 .20 86	.186
T 2.15 (V Ind E)	$\bar{x}$ s n	.28 .10 12	.20 .14 18	.21 .14 18	.23 .17 20	.12 .05 15	.13 .09 17	.27 .14 15	.20 .14 115	.210

VARIABLES		TRAINING PROGRAMS								
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	η^2
P 2.22 (DISADV)	$\bar{x}$ s n		.17 .14 6		.11 .02 2	.20 00 1	.04 00 2	.41 .27 4	.21 .21 15	
P 2.23 (DISADV)	$\bar{x}$ s n	.15 .15 8	.17 .14 5	.27 .16 12	.35 .25 4	.08 .09 9	.05 .06 5	.54 .11 9	.24 .22 52	.538
P 2.24 (DISADV)	$\bar{x}$ s n	.19 .05 2	.24 .06 3	.31 .02 2	.14 .14 2	.18 .03 3	.07 .1 5	.57 .18 2	.21 .17 19	
P 2.25	$\bar{x}$ s n									
P 3.11 (RURL E)	$\bar{x}$ s n					.99 00 1	.33 .47 3		.09 .28 23	
P 3.12 (RURL C)	$\bar{x}$ s n					.80 00 1		.16 .14 2	.12 .26 9	
P 3.13 (RURL P)	$\bar{x}$ s n					.75 00 2	.80 00 1		.57 .33 4	
P 3.14 (RURL T)	$\bar{x}$ s n	.06 .06 10		.39 .40 15	.03 .03 4	.87 .15 8	.36 .37 4		.29 .39 51	.626

VARIABLES		TRAINING PROGRAMS								η^2
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	
T 2.1c (V Ind T)	$\bar{x}$	.26	.19	.21	.22	.12	.13	.26	.20	
	s	.69	.15	.14	.16	.06	.09	.14	.13	.094
	n	12	18	18	20	15	17	15	115	
T 2.22 (X Ind L)	$\bar{x}$	.04	.02	.03	.03	00	00	.05	.02	
	s	.04	.03	.05	.07	00	00	.13	.0	
	n	10	15	1[illegible]	8	00	00	13	85	
T 2.23 (X Ind S)	$\bar{x}$	.03	.03	00	.01	.04	00	.01	.02	
	s	.04	.02	00	.02	.11	00	.01	.05	
	n	10	10	00	10	10	00	13	0	
T 2.24 (X Ind I)	$\bar{x}$	.12	.05	.02	.03	00	00	.01	.03	
	s	.30	.14	.04	.05	.01	.01	.02	.12	
	n	10	11	14	13	15	10	13	86	
T 2.25 (X Ind E)	$\bar{x}$	.04	.02	.03	.04	.01	00	.02	.02	
	s	.03	.02	.05	.07	.01	.01	.03	.04	.080
	n	12	18	18	20	15	1	15	115	
T 2.26 (X Ind T)	$\bar{x}$	.04	.02	.03	.04	.01	00	.02	.02	
	s	.03	.02	.04	.06	.01	.01	.03	.04	.26
	n	12	18	1[illegible]	20	15	1	15	115	
T 2.32 (Dir L)	$\bar{x}$	.34	.33	.42	.49	.29	.31	.59	.39	
	s	.22	.32	.22	.24	.20	.21	.20	.25	
	n	10	15	1[illegible]	8	10	13	13	85	
T 2.33 (V Dir S)	$\bar{x}$	.44	.36	.51	.34	.33	.34	.44	.40	
	s	.18	.21	.28	.25	.21	.30	.2	.25	
	n	10	10	9	10	10	8	13	0	

VARIABLES		TRAINING PROGRAMS								η^2
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	
T 2.34 (Y Dir I)	$\bar{x}$	.34	.37	.32	.25	.31	.36	.51	.35	
	s	.16	.16	.21	.23	.20	.24	.20	.22	
	n	10	11	14	13	15	10	14	86	
T 2.35 (Y Dir E)	$\bar{x}$	.41	.34	.42	.34	.31	.38	.50	.38	.137
	s	.14	.20	.10	.17	.14	.20	.15	.17	
	n	12	18	18	20	15	17	15	115	
T 2.36 (Y Dir T)	$\bar{x}$	.39	.32	.40	.32	.29	.36	.48	.36	.137
	s	.14	.20	.11	.16	.14	.21	.14	.17	
	n	12	18	18	20	15	17	15	115	
T 2.42 (X Dir L)	$\bar{x}$	.08	.14	.14	.20	.09	.07	.21	.13	
	s	.11	.24	.15	.22	.15	.06	.16	.17	
	n	10	15	16	8	10	13	13	85	
T 2.43 (X Dir S)	$\bar{x}$	.12	.07	.10	.03	.07	.08	.14	.10	
	s	.13	.07	.10	.08	.13	.08	.21	.13	
	n	10	10	9	10	10	8	13	70	
T 2.44 (X Dir I)	$\bar{x}$	.05	.04	.05	.04	.05	.04	.09	.05	
	s	.05	.03	.07	.07	.03	.06	.09	.07	
	n	10	11	14	13	15	10	13	86	
T 2.45 (X Dir E)	$\bar{x}$	.08	.07	.09	.07	.07	.09	.11	.08	.078
	s	.07	.05	.07	.07	.06	.08	.03	.07	
	n	12	18	18	20	15	17	15	115	
T 2.46 (X Dir T)	$\bar{x}$	.08	.07	.09	.06	.06	.08	.10	.08	.000
	s	.07	.05	.06	.06	.05	.07	.08	.06	
	n	12	18	18	20	15	17	15	115	

VARIABLES		TRAINING PROGRAMS								
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conven-tional	Turn About	OVERALL	η^2
T 2.52 (Pup L)	$\bar{x}$	.35	.41	.24	.26	.70	.30	.25	.35	
	s	.16	.26	.21	.14	1.14	.17	.19	.46	
	n	10	15	16	8	10	13	13	85	
T 2,53 (Pup S)	$\bar{x}$	.44	.44	.23	.35	.16	.15	.28	.30	
	s	.20	.30	.22	.30	.17	.16	.21	.25	
	n	10	10	9	10	10	8	13	70	
T 2.54 (Pup I)	$\bar{x}$	.39	.39	.25	.25	.31	.41	.21	.31	
	s	.27	.35	.19	.26	.22	.33	.18	.27	
	n	10	11	14	13	15	10	13	86	
T 2.55 (Pup E)	$\bar{x}$	.46	.40	.23	.35	.39	.35	.29	.35	
	s	.13	.21	.10	.21	.22	.19	.15	.20	.132
	n	12	18	18	20	15	17	15	115	
T 2.56 (Pup T)	$\bar{x}$	.44	.37	.22	.33	.38	.32	.28	.33	
	s	.11	.20	.10	.25	.23	.20	.15	.20	.152
	n	12	18	18	20	15	17	15	115	
T 2.62 (X Pup L)	$\bar{x}$	.04	.03	.03	.01	.09	.05	.01	.04	
	s	.05	.04	.06	.02	.08	.10	.01	.07	
	n	10	15	16	8	10	13	13	85	
T 2.63 (X Pup S)	$\bar{x}$	.07	.05	.02	.13	.01	.04	.01	.05	
	s	.10	.11	.04	.17	.02	.06	.02	.10	
	n	10	10	9	10	10	8	13	70	
T 2.64 (X Pup I)	$\bar{x}$	.03	.01	.02	.02	.02	.02	.01	.02	
	s	.04	.02	.05	.04	.04	.03	.03	.04	
	n	10	11	14	13	15	10	13	86	

VARIABLES		TRAINING PROGRAMS								η^2
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	
T 2.65 (X Pup E)	$\bar{x}$	.05	.04	.03	.08	.04	.05	.01	.04	.034
	s	.03	.07	.04	.13	.05	.06	.02	.07	
	n	12	18	18	20	15	17	15	115	
T 2.66 (X Pup T)	$\bar{x}$	.05	.03	.03	.08	.04	.04	.01	.04	.020
	s	.04	.07	.04	.13	.05	.06	.02	.07	
	n	12	18	18	20	15	17	15	115	
T 2.72 (V Inf L)	$\bar{x}$	.06	.27	.07	.07	.12	.22	.06	.13	
	s	.06	.27	.09	.13	.10	.20	.07	.18	
	n	10	15	16	8	10	13	13	85	
T 2.73 (V Inf S)	$\bar{x}$	.02	.13	.01	.14	.06	.09	.04	.07	
	s	.03	.23	02	.17	.12	.11	.06	.14	
	n	10	10	9	10	10	8	13	85	
T 2.74 (V Inf I)	$\bar{x}$	.10	.03	.02	.11	.09	.01	.04	.05	
	s	.15	.03	.05	.09	.10	.02	.08	.09	
	n	10	11	14	13	15	10	13	86	
T 2.75 (V Inf E)	$\bar{x}$	.06	.21	.07	.16	.13	.18	.07	.13	.157
	s	.05	.26	.07	.13	.11	.20	.07	.16	
	n	12	18	18	20	15	17	15	115	
T 2.76 (V Inf T)	$\bar{x}$	.06	.18	.07	.16	.13	.17	.07	.13	.211
	s	.05	.22	.07	.13	.10	.19	.06	.15	
	n	12	18	18	20	15	17	15	115	
T 3.1 (S + I/T)	$\bar{x}$	.63	.55	.50	.79	.73	.45	.68	.62	.167
	s	.27	.34	.37	.33	.22	.37	.26	.34	
	n	12	18	18	20	15	17	15	115	

VARIABLES		TRAINING PROGRAMS								η^2
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	
T 3.2 (L/T)	$\bar{x}$	.37	.41	.49	.19	.25	.55	.32	.37	.174
	s	.27	.32	.37	.33	.24	.37	.26	.34	
	n	12	18	18	20	15	17	15	115	
T 3.3 (i/T)	$\bar{x}$	.35	.25	.12	.30	.13	.17	.37	.24	.166
	s	.21	.27	.16	.42	.17	.24	.28	.29	
	n	12	18	18	20	15	17	15	115	
T 3.4 (S/T)	$\bar{x}$	.27	.30	.38	.49	.60	.27	.31	.38	.119
	s	.21	.35	.33	.43	.25	.37	.21	.34	
	n	12	18	18	20	15	17	15	115	
T 4.11 (H Cog Q)	$\bar{x}$	.45	.51	.62	.51	.57	.54	.46	.52	.094
	s	.17	.32	.25	.33	.19	.39	.20	.29	
	n	12	18	18	20	15	17	15	115	
T 4.12 (H Cog Q)	$\bar{x}$	.23	.22	.24	.23	.23	.23	.18	.22	.077
	s	.08	.19	.13	.27	.14	.20	.10	.18	
	n	12	18	18	20	15	17	15	115	
T 4.21 (CogQ)	$\bar{x}$	.11	.10	.14	.05	.23	.17	.09	.13	.112
	s	.10	.10	.14	.20	.19	.23	.12	.17	
	n	12	18	18	20	15	17	15	115	
T 4.22 (CogQ)	$\bar{x}$	.07	.04	.05	.04	.11	.07	.04	.06	.148
	s	.07	.06	.06	.17	.11	.12	.06	.11	
	n	12	18	18	20	15	17	15	115	
T 4.31 (Ques)	$\bar{x}$	.45	.32	.40	.44	.39	.33	.30	.37	.119
	s	.09	.18	.16	.26	.22	.14	.14	.19	
	n	12	18	18	20	15	17	15	115	

VARIABLES		TRAINING PROGRAMS								
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	η^2
T 4.41 (Proc)	$\bar{x}$	.51	.62	.63	.58	.64	.68	.69	.62	.082
	s	.13	.19	.21	.26	.16	.14	.14	.19	
	n	12	18	18	20	15	17	15	115	
T 4.43 (Proc)	$\bar{x}$	.27	.18	.26	.33	.27	.18	.28	.25	.142
	s	.15	.19	.22	.26	.15	.19	.18	.21	
	n	12	18	18	20	15	17	15	115	
T 5.1 (Atten)	$\bar{x}$	2.84	2.69	2.86	2.75	2.63	2.54	2.77	2.72	.232
	s	.14	.28	.15	.25	.25	.24	.20	.25	
	n	12	18	18	20	15	17	15	115	
T 5.2 (Atten)	$\bar{x}$	2.97	2.81	2.98	2.89	2.78	2.69	2.93	2.86	.194
	s	.18	.23	.12	.30	.23	.26	.29	.26	
	n	12	18	18	20	15	17	15	115	
T 6.1 (Indv T)	$\bar{x}$	2.42	2.50	2.50	2.06	2.74	2.29	2.40	2.40	.097
	s	.57	1.03	.74	.80	.62	.69	.97	.82	
	n	12	18	18	20	15	17	15	115	
T 7.1 (Mgmt)	$\bar{x}$	4.14	3.06	3.50	3.22	3.19	3.36	3.29	3.37	
	s	.74	1.02	1.11		.74	1.09	.71		
	n	12	18	18	18	15	17	15	113	
T 7.2 (Dull)	$\bar{x}$	4.71	4.18	4.59	3.85	4.36	3.97	4.14	4.24	
	s	.90	.84	1.18		.79	1.06	.84		
	n	12	18	18	17	15	17	15	112	
T 7.3 (Systm)	$\bar{x}$	4.97	4.36	4.54	4.39	4.44	3.98	4.25	4.39	
	s	.76	.90	1.10		.96	.97	.67		
	n	12	18	18	17	15	17	15	112	

VARIABLES		TRAINING PROGRAMS								η^2
		Auburn	SEEC	Project 1070	Teacher Researcher	Teacher Corps	Conventional	Turn About	OVERALL	
T 7.4 (Harsh)	$\bar{x}$ s n	4.92 .98 12	4.49 .84 18	4.79 1.01 18	4.27 17	4.57 .87 15	4.15 .96 17	4.20 1.14 15	4.47 112	
T 10.1 (Comm T)	$\bar{x}$ s n	12.50 1.31 8	13.10 1.91 10	13.92 .29 12	13.40 .55 5	11.57 1.99 7	11.60 5.51 5	13.86 1.29 14	13.08 2.08 61	.176
T 11.1 (TSRT)	$\bar{x}$ s n	110.38 3.50 8	119.90 25.84 10	106.92 4.56 12	108.80 6.05 5	108.57 6.40 7	125.80 34.46 5	124.29 25.44 14	115.38 19.72 61	.148
P 19.27 (ATTP2)	$\bar{x}$ s n	41.25 4.23 8	38.0 11.63 10	40.92 4.34 12	37.20 3.12 5	38.86 4.06 7	30.60 11.61 5	35.64 10.79 14	37.89 8.45 61	.127
	$\bar{x}$ s n									
	$\bar{x}$ s n									
	$\bar{x}$ s n									
	$\bar{x}$ s n									

APPENDIX B_2

INTERCORRELATIONS OF 62 VARIABLES

The variables for the correlation matrix are indicated only by sequential number on the following pages. The code and acronyms of the variable are keyed with its number in the matrix below.

1 - T1.1 (PrinR)
2 - P3.16 (Rurl)
3 - P1.1 (GrLvl)
4 - P2.12 (AmInd)
5 - P2.14 (Minrty)
6 - P4.11 (MdulT)
7 - P4.12 (MdulPD)
8 - P5.2 (FldQ)
9 - P6.11 (LocalT)
10 - P6.12 (LocalD)
11 - P6.21 (ParnT)
12 - P6.22 (ParnD)
13 - P8.11 (McroT)
14 - P8.12 (McroD)
15 - P11.11 (SupvT)
16 - P11.12 (SupvS)
17 - P12.15 (Choice)
18 - P12.16 (Choice)
19 - P13.1 (CTExp)
20 - P15.1 (IndTT)
21 - P15.2 (IndTT)
22 - P17.3 (CoopT)
23 - P19.17 (ATT)
24 - P2.25 (Disadv)
25 - T2.16 (VIndT)
26 - T2.26 (XIndT)
27 - T2.36 (VDirT)
28 - T2.46 (XDirT)
29 - T2.56 (PupE)
30 - T2.66 (PupT)
31 - T2.76 (VInfT)
32 - T3.1 (S+i/T)
33 - T3.4 (S/T)
34 - T4.12 (HCogQ)
35 - T4.22 (CogQ)
36 - T4.41 (Proc)
37 - T4.43 (Proc)
38 - T5.1 (Atten)
39 - T6.1 (IndoI)
40 - T7.2 (Dull)
41 - T7.3 (System)
42 - T7.4 (Harsh)
43 - E2.0 (Sex)
44 - E3.1 (GPA-G)
45 - E4.1 (Grad)
46 - E5.3 (Rec)
47 - E5.4 (Therap)
48 - E5.5 (CompEx)
49 - E6.1 (FOup)
50 - E6.2 (MothEd)
51 - E8.1 (TA)
52 - E9.1 (Fol-Ec)
53 - E10.1 (SRS)
54 - E11.1 (SDogm)
55 - E12.1 (Clus1)
56 - E13.1 (Clus2)
57 - E14.1 (Clus3)
58 - E15.1 (Clus4)
59 - E16.11 (AthAc)
60 - E16.51 (Mus)
61 - E16.01 (Act)
62 - E17.0 (AGE)

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.000											
2	-C.C10	1.000										
3	-0.190	C.050	1.000									
4	0.090	0.110	0.040	1.000								
5	0.210	-0.010	0.010	0.610	1.000							
6	C.14C	-C.050	-0.480	0.010	-0.060	1.000						
7	0.300	C.070	-C.25C	-0.170	0.100	0.170	1.000					
8	-0.020	0.300	-0.040	0.130	C.130	0.150	0.160	1.000				
9	0.070	0.050	0.020	0.160	0.100	-0.010	-0.	-0.140	1.000			
10	-0.040	C.010	-C.07C	-0.120	-0.120	0.090	0.530	0.310	-0.060	1.000		
11	-0.010	0.270	-0.090	0.140	0.010	-0.040	0.050	0.120	0.500	0.040	1.000	
12	-0.	0.600	-0.150	0.280	0.090	0.120	0.010	0.630	0.100	-0.	0.310	1.000
13	C.07C	-C.180	-0.110	-0.050	0.060	0.170	0.040	0.010	-0.040	-0.070	0.010	-0.120
14	C.01C	-C.220	-0.400	0.060	-C.10C	C.470	-0.230	0.070	-0.050	-0.230	-0.100	0.130
15	-0.100	0.170	-0.130	-0.030	-0.070	0.220	-0.050	0.300	-0.010	-0.050	0.210	0.390
16	-C.09C	-C.260	-0.260	0.020	-0.150	0.400	-0.300	0.030	0.030	-0.230	-0.070	0.040
17	0.070	C.040	-0.09C	0.100	0.040	0.210	-0.130	-0.030	0.260	-0.110	0.240	0.080
18	0.260	0.090	-0.160	0.050	0.040	0.220	0.280	0.080	0.160	0.100	0.180	0.060
19	0.180	-0.200	0.100	0.020	-0.	0.020	-0.060	-0.130	-0.110	-0.140	-0.210	-0.200
20	0.310	C.110	-C.24C	0.090	0.060	0.300	0.280	0.110	0.020	0.100	0.060	0.080
21	0.140	-0.100	-0.230	-0.210	C.020	0.300	0.300	0.340	-0.230	0.440	-0.190	0.080
22	0.020	-0.250	0.210	-0.110	0.050	0.190	-0.160	0.150	-0.130	-0.180	-0.270	-0.170
23	C.100	-C.170	0.030	0.070	-0.180	0.030	-0.060	-0.150	0.060	-0.	0.040	-0.170
24	0.170	-0.100	-0.290	0.220	C.200	0.210	0.020	0.040	0.090	0.020	-0.040	0.040
25	-0.010	-0.320	-0.350	-0.010	-0.060	0.240	0.090	-0.110	0.080	-0.020	-0.080	-0.140
26	C.07C	-C.210	-0.130	0.030	-0.030	0.030	0.080	-0.160	0.	0.080	0.030	-0.140
27	0.070	-C.040	-C.38C	0.130	0.040	0.240	-0.020	-0.020	-0.020	-0.070	-0.050	-0.030
28	0.	-0.080	-0.170	0.030	-0.070	0.210	-0.010	-0.060	-0.050	-0.070	-0.080	-0.030
29	-C.12C	-C.080	0.	-0.100	-0.020	-0.030	0.130	0.	-0.050	0.070	0.010	-0.120
30	-0.100	-C.050	C.16C	-0.070	-0.110	-0.090	-0.070	-0.110	-0.010	-0.140	-0.070	-0.090
31	0.010	-0.070	0.550	-0.150	-0.04C	-0.240	-0.130	-0.100	-0.040	-0.150	-0.100	-0.120
32	-0.080	0.110	0.020	0.270	0.210	0.040	-0.	0.040	0.030	-0.130	0.050	0.090

	1	2	3	4	5	6	7	8	9	10	11	12
33	-0.010	0.230	-0.010	0.280	0.280	-0.060	0.010	0.190	0.030	0.020	0.060	0.250
34	-0.150	0.010	-0.090	-0.100	-0.130	-0.020	0.040	-0.110	0.100	-0.010	0.060	-0.040
35	-0.200	0.030	0.010	-0.080	-0.120	0.030	0.030	0.060	-0.070	-0.	0.010	0.070
36	0.060	0.050	0.100	0.020	0.030	0.020	-0.170	0.080	-0.080	-0.090	-0.070	0.120
37	-0.010	0.040	-0.060	0.200	0.090	-0.	0.060	-0.030	-0.	-0.140	-0.040	0.060
38	0.200	-0.110	-0.320	0.020	-0.020	0.190	0.210	-0.090	-0.020	0.140	0.050	0.
39	0.080	0.170	-0.190	0.080	0.160	0.230	0.170	0.180	-0.010	0.070	-0.060	0.210
40	0.150	-0.040	-0.240	0.040	0.030	0.110	0.220	0.090	-0.150	0.110	-0.160	0.090
41	0.190	-0.140	-0.220	0.	-0.010	0.080	0.200	0.080	-0.060	0.080	-0.130	0.030
42	0.120	0.040	-0.140	-0.020	0.010	0.090	0.250	0.020	-0.140	0.130	-0.160	0.060
43	0.070	-0.100	-0.390	-0.020	0.060	0.200	0.020	-0.080	0.060	-0.050	0.030	-0.020
44	0.050	0.050	-0.100	-0.040	-0.050	0.090	-0.030	0.040	0.030	-0.030	-0.030	-0.040
45	0.030	0.490	-0.220	0.090	-0.110	0.090	0.490	0.320	0.060	0.490	0.250	0.520
46	-0.050	-0.130	0.120	-0.060	-0.020	0.	0.050	0.120	-0.200	0.260	-0.160	-0.140
47	-0.210	0.100	-0.070	-0.020	-0.070	0.160	-0.020	0.150	-0.140	0.090	0.010	0.020
48	0.	-0.210	-0.110	-0.130	-0.010	0.130	0.080	-0.040	-0.050	0.080	-0.060	-0.180
49	0.290	-0.060	-0.110	-0.120	0.020	0.130	0.100	-0.040	-0.120	-0.060	-0.100	-0.070
50	-0.050	-0.180	0.050	-0.170	-0.140	-0.020	0.010	-0.160	0.010	0.170	0.010	-0.330
51	0.140	-0.120	-0.080	-0.080	-0.160	-0.020	-0.120	-0.220	0.010	-0.280	-0.050	-0.090
52	0.040	0.130	0.040	0.030	0.070	-0.130	0.030	0.030	0.020	0.050	0.	0.010
53	0.090	0.120	-0.060	0.030	0.050	0.100	0.040	0.160	0.160	-0.060	0.200	0.120
54	-0.070	0.020	0.050	-0.040	0.020	-0.150	-0.210	-0.210	0.040	-0.120	0.010	-0.020
55	0.170	-0.180	-0.070	-0.140	-0.100	-0.060	-0.030	-0.230	0.130	-0.190	0.040	-0.200
56	0.070	0.120	0.190	-0.030	0.130	-0.090	0.050	0.030	-0.100	0.030	-0.200	-0.060
57	0.030	0.170	0.070	-0.060	0.070	-0.020	0.020	0.120	0.020	-0.150	-0.030	0.120
58	-0.020	-0.030	0.050	0.030	0.010	-0.080	-0.170	-0.180	0.070	-0.110	-0.020	-0.010
59	0.040	0.010	-0.030	0.060	-0.030	0.140	-0.090	0.010	0.290	-0.010	-0.010	0.090
60	-0.060	0.070	0.060	-0.080	0.010	-0.080	0.070	0.090	-0.120	0.160	-0.060	0.080
61	-0.070	0.030	-0.050	-0.160	0.120	-0.090	0.010	0.010	-0.090	0.040	-0.110	-0.180
62	-0.010	0.190	-0.190	-0.040	-0.150	-0.050	0.170	0.040	-0.080	0.150	0.070	0.130

	13	14	15	16	17	18	19	20	21	22	23	24
13	1.000											
14	C.C90	1.COO										
15	-0.050	C.320	1.000									
16	0.080	0.900	0.270	1.000								
17	-0.110	0.120	0.150	0.170	1.000							
18	C.050	-C.020	0.070	-0.030	0.620	1.000						
19	-0.080	C.130	-0.20C	0.170	-0.190	-0.090	1.000					
20	0.100	0.170	0.160	0.110	0.18C	0.460	-0.160	1.000				
21	0.150	0.390	0.150	0.300	-0.040	0.040	0.080	0.110	1.000			
22	C.220	C.360	C.23C	0.400	-0.060	-0.140	0.120	0.060	0.220	1.000		
23	0.030	0.170	-0.100	0.140	0.17C	0.190	0.120	0.020	-0.050	-0.010	1.000	
24	-0.060	0.520	0.060	0.440	0.110	0.100	0.080	0.120	0.340	0.030	0.140	1.000
25	C.150	C.190	-0.070	0.190	0.040	0.010	0.030	0.030	-0.080	-0.020	0.200	0.180
26	0.130	-C.020	-0.	-0.030	0.03C	0.020	-0.050	0.140	-0.130	-0.100	0.090	0.020
27	0.170	0.260	0.080	0.230	0.070	0.020	0.100	0.150	0.050	-0.020	-0.060	0.180
28	C.110	C.150	0.160	0.140	0.070	0.130	0.070	0.270	0.040	0.	-0.060	0.050
29	0.290	-C.060	-0.03C	-0.060	-0.070	-0.020	-0.180	0.070	-0.100	0.120	0.090	-0.110
30	0.130	-0.160	-0.110	-0.090	-0.090	-0.120	-0.080	-0.100	-0.320	0.050	0.110	-0.250
31	-0.110	-0.150	-0.030	-0.150	-0.170	-0.160	0.120	-0.190	-0.070	0.130	0.070	-0.210
32	-0.090	C.060	-C.03C	0.100	0.120	0.090	-0.100	0.100	-0.230	0.050	-0.030	0.100
33	-0.130	-0.110	0.060	-0.090	C.150	0.070	-0.190	0.030	-0.100	-0.100	-0.190	0.020
34	0.060	-0.100	-0.080	0.010	-0.070	0.010	0.090	-0.080	-0.120	-0.010	-0.040	-0.040
35	C.01C	-C.060	0.020	-0.060	-0.110	-0.030	-0.050	-0.100	-0.080	0.050	0.010	-0.060
36	-0.010	0.110	0.090	0.010	0.020	-0.060	-0.110	-0.010	0.140	0.	-0.060	0.020
37	-0.070	0.050	-0.160	0.040	0.	-0.010	-0.090	0.080	-0.260	0.020	0.010	-0.030
38	-C.1CC	C.070	0.050	0.020	-0.030	0.070	0.070	0.050	-0.030	-0.180	0.110	0.240

	13	14	15	16	17	18	19	20	21	22	23	24
39	0.160	C.040	C.12C	0.020	C.15C	C.130	-0.130	0.060	0.160	0.	-0.190	0.080
40	-0.130	-0.020	-0.170	-0.100	-0.100	0.040	-0.040	0.150	0.010	-0.050	-0.070	-0.
41	-C.13C	-C.040	-0.120	-0.090	-0.110	-0.020	-0.030	0.110	-0.120	-0.030	-0.050	-0.010
42	-0.020	-C.070	-0.23C	-0.120	-0.160	-0.030	-0.040	0.140	-0.	-0.040	-0.070	-0.050
43	0.070	0.110	-0.010	0.040	C.110	C.040	-0.140	-0.010	0.040	-0.110	-0.100	0.160
44	0.020	-0.020	0.060	-0.040	-0.020	-0.050	-0.030	0.060	-0.130	-0.030	-0.020	-0.
45	-C.25C	-C.290	C.03C	-0.37C	-0.040	0.160	-0.240	0.140	-0.030	-0.530	-0.020	-0.110
46	-0.030	-0.060	-0.020	-0.050	-0.110	-0.050	-0.110	0.030	0.080	0.190	-0.040	-0.100
47	-0.070	0.100	0.220	0.080	0.090	0.030	-0.150	0.010	0.070	0.120	-0.060	-0.050
48	C.010	C.170	0.050	0.160	0.070	0.060	-0.070	0.050	0.160	0.190	0.050	0.020
49	0.050	C.100	C.06C	-0.	C.05C	C.040	-0.010	0.060	0.210	0.030	-0.020	0.130
50	-0.030	-0.060	-0.090	-0.030	-0.	-0.080	0.020	-0.050	-0.100	0.080	0.020	-0.210
51	-C.01C	C.300	-0.070	0.210	0.110	0.030	0.010	0.020	0.050	0.030	0.160	0.190
52	0.020	-C.210	-0.160	-0.180	0.	0.090	-0.150	0.030	-0.150	-0.140	0.010	-0.120
53	-0.110	-0.020	0.330	-0.010	0.220	0.170	-0.150	0.080	-0.050	0.120	-0.080	-0.080
54	-0.020	0.140	-0.010	0.120	0.110	-0.060	-0.060	-0.140	-0.040	-0.040	0.010	0.090
55	0.060	C.240	C.01C	0.190	0.180	0.150	-0.060	0.080	-0.020	0.090	0.250	0.140
56	-0.020	-0.300	-0.130	-0.280	-0.040	0.020	-0.170	0.040	-0.060	-0.110	-0.020	-0.170
57	0.010	0.040	0.130	0.	0.060	-0.	-0.080	-0.050	0.050	0.270	-0.130	-0.080
58	-0.020	C.140	-0.180	0.150	0.050	-0.050	0.010	-0.110	-0.010	0.030	0.020	0.060
59	-0.080	C.270	0.020	0.280	0.170	0.020	-0.080	-0.090	0.110	0.120	0.070	0.130
60	-0.040	0.010	0.040	0.050	0.130	0.100	-0.030	0.060	0.180	0.050	-0.	0.010
61	0.130	-C.040	0.080	-0.050	-0.010	-0.110	-0.080	0.060	0.130	0.140	-0.210	0.
62	-0.130	C.080	0.140	-0.020	-0.090	0.020	-0.	0.130	0.040	-0.330	0.150	0.150

	25	26	27	28	29	30	31	32	33	34	35	36
25	1.000											
26	0.400	1.000										
27	0.280	0.080	1.000									
28	0.010	-0.080	0.540	1.000								
29	0.200	0.100	0.110	-0.020	1.000							
30	0.200	0.050	0.090	0.070	0.560	1.000						
31	-0.230	-0.130	-0.510	-0.230	-0.060	0.130	1.000					
32	-0.060	-0.180	0.230	0.020	0.150	0.070	-0.230	1.000				
33	-0.210	-0.050	0.030	-0.010	-0.110	-0.220	-0.260	0.640	1.000			
34	0.080	-0.080	-0.060	-0.090	-0.030	0.260	-0.080	-0.020	-0.150	1.000		
35	-0.050	-0.130	-0.060	0.020	0.150	0.360	0.070	-0.050	-0.190	0.550	1.000	
36	-0.240	-0.050	-0.020	0.090	-0.070	-0.250	0.100	-0.110	0.030	-0.670	-0.370	1.000
37	0.030	-0.040	0.100	-0.130	0.140	0.290	-0.140	0.630	0.320	0.330	0.180	-0.450
38	0.250	0.230	0.160	0.030	-0.050	-0.100	-0.100	0.130	-0.030	-0.070	-0.080	0.040
39	0.060	-0.040	0.210	0.080	0.140	0.110	-0.360	0.300	0.390	0.010	-0.130	0.010
40	0.270	0.120	-0.	-0.050	0.160	0.230	0.050	-0.030	-0.110	0.080	0.210	-0.170
41	0.310	0.230	-0.030	-0.120	0.150	0.140	0.070	0.060	0.040	-0.040	0.040	-0.110
42	0.250	-0.060	0.	-0.090	0.130	0.200	0.080	0.160	0.020	0.080	0.030	-0.240
43	0.180	0.050	0.270	0.070	-0.100	-0.080	-0.300	-0.010	0.020	-0.030	-0.110	-0.050
44	0.060	-0.040	0.210	0.180	-0.	0.070	-0.010	0.060	0.070	-0.030	-0.010	0.020
45	0.070	0.060	-0.030	-0.020	0.020	0.110	-0.180	-0.010	0.090	0.070	0.100	-0.090
46	-0.060	-0.040	-0.130	-0.090	0.190	0.070	0.050	0.050	0.040	-0.070	-0.020	0.020
47	0.010	0.020	0.090	0.020	0.080	0.110	-0.080	-0.030	-0.070	0.060	0.080	0.010
48	0.040	0.040	0.060	-0.040	0.150	0.040	-0.100	-0.	-0.090	-0.020	-0.060	0.030
49	0.120	-0.010	0.050	-0.050	0.	0.010	0.110	0.030	0.040	-0.060	-0.120	0.020
50	-0.010	0.050	0.030	-0.010	-0.010	-0.030	-0.010	-0.200	-0.130	-0.060	0.020	-0.050
51	-0.100	-0.090	0.110	0.060	-0.210	-0.120	-0.040	-0.	-0.040	0.010	0.020	0.020
52	-0.040	0.	-0.100	-0.040	0.100	0.050	0.080	0.090	0.060	-0.040	0.	0.060
53	-0.190	-0.160	0.040	0.150	-0.070	0.110	0.010	-0.070	0.010	-0.040	0.050	-0.050
54	-0.030	0.050	0.100	-0.070	0.030	-0.020	0.110	0.040	-0.010	-0.150	-0.090	0.130
55	0.090	0.040	0.070	0.080	-0.010	0.030	-0.020	-0.140	-0.250	-0.030	-0.030	-0.020
56	-0.230	-0.170	-0.140	-0.010	-0.070	0.030	0.230	0.130	0.160	-0.060	0.050	0.110
57	-0.190	-0.240	0.090	0.050	-0.040	0.050	0.090	0.060	0.060	-0.090	0.020	0.060
58	-0.110	0.050	0.110	-0.050	0.060	-0.010	0.080	0.120	0.030	-0.120	-0.020	0.140
59	-0.020	-0.030	-0.050	-0.080	0.010	-0.060	0.030	0.090	0.070	-0.050	-0.110	0.080
60	-0.100	0.020	-0.110	-0.050	0.120	-0.	-0.	-0.080	0.020	-0.060	0.010	-0.010
61	-0.060	0.	0.050	0.050	0.110	-0.060	-0.030	-0.050	0.060	-0.130	-0.090	0.080
62	0.050	0.100	0.090	0.100	-0.060	0.060	-0.120	-0.070	-0.060	-0.070	-0.070	0.080

	37	38	39	40	41	42	43	44	45	46	47	48
37	1.000											
38	0.070	1.000										
39	0.100	-0.010	1.000									
40	0.200	0.200	0.070	1.000								
41	0.150	0.300	0.060	0.780	1.000							
42	0.320	0.180	0.140	0.700	0.630	1.000						
43	0.060	0.170	0.190	0.080	0.130	0.180	1.000					
44	-0.070	0.030	0.	-0.150	-0.040	-0.050	0.250	1.000				
45	0.080	0.150	0.150	0.300	0.220	0.280	-0.010	-0.	1.000			
46	0.090	0.070	0.060	0.200	0.180	0.250	0.170	-0.050	0.020	1.000		
47	0.010	-0.100	0.060	0.090	0.070	0.050	0.150	0.060	0.120	0.090	1.000	
48	0.010	0.040	0.100	0.080	0.140	0.110	0.460	0.050	-0.090	0.510	0.510	1.000
49	0.020	-0.030	0.290	0.010	0.040	0.080	0.110	0.150	-0.040	-0.120	-0.110	-0.020
50	-0.140	-0.070	-0.190	-0.050	0.040	0.030	0.040	0.030	-0.080	0.250	0.060	0.170
51	0.120	-0.020	-0.060	-0.200	-0.130	-0.110	0.140	-0.010	-0.180	-0.160	-0.010	0.050
52	0.040	0.070	0.010	0.220	0.220	0.180	-0.110	0.080	0.080	-0.010	-0.130	-0.140
53	-0.050	-0.060	0.090	-0.060	0.	-0.030	0.150	0.150	0.080	0.060	0.150	0.060
54	-0.010	0.110	-0.060	-0.060	-0.040	-0.060	0.040	-0.090	-0.120	-0.120	-0.060	-0.060
55	-0.010	-0.010	-0.160	-0.150	-0.080	-0.100	0.190	0.090	-0.150	-0.150	-0.020	0.140
56	0.070	0.030	0.060	0.090	0.110	0.120	-0.190	0.110	0.020	0.080	-0.080	-0.210
57	0.050	0.040	0.100	-0.030	0.050	0.040	0.110	-0.050	-0.080	-0.020	0.070	0.020
58	0.100	0.070	-0.050	-0.010	-0.020	-0.020	-0.070	-0.070	-0.150	-0.150	-0.050	-0.070
59	0.030	-0.020	0.160	-0.060	-0.020	0.010	0.020	-0.110	-0.030	0.090	-0.010	0.180
60	-0.140	-0.040	0.090	0.100	-0.020	0.100	-0.160	-0.120	0.100	-0.020	0.100	0.100
61	-0.110	-0.030	0.060	-0.100	-0.120	-0.120	0.040	0.020	-0.080	0.090	0.110	-0.030
62	-0.060	0.030	-0.060	-0.070	-0.	-0.010	-0.040	0.060	0.430	-0.130	0.260	-0.050

	49	50	51	52	53	54	55	56	57	58	59	60
49	1.000											
50	-0.180	1.000										
51	0.120	-0.	1.000									
52	0.020	-0.060	-0.250	1.000								
53	-0.010	0.100	0.080	-0.120	1.000							
54	0.100	0.060	0.270	0.130	-0.190	1.000						
55	0.070	-0.	0.490	0.210	0.230	0.310	1.000					
56	0.080	0.040	0.010	0.610	-0.100	0.120	-0.110	1.000				
57	-0.040	-0.	0.250	0.060	0.440	0.290	0.250	-0.	1.000			
58	0.050	0.040	0.360	0.070	-0.140	0.780	0.140	0.140	0.180	1.000		
59	0.060	-0.020	0.110	0.130	0.050	0.030	0.180	-0.040	0.140	0.050	1.000	
60	-0.110	0.060	-0.090	0.020	-0.010	0.080	0.060	-0.060	-0.090	0.110	0.120	1.000
61	0.020	0.060	0.080	-0.060	0.100	0.140	0.100	0.100	0.140	0.020	-0.040	-0.020
62	0.040	-0.120	0.100	-0.060	-0.040	-0.010	0.160	-0.020	-0.200	-0.060	-0.110	0.070

	61	62
61	1.000	
62	0.030	1.000

APPENDIX C

FORMS AND INSTRUMENTS USED IN THE STUDY

The questionnaires, attitude scales, interview schedules, and other data-gathering forms used in the project are included in this appendix in the following order with one exception. Acronyms are those used in Appendix A.

ETQ - Questionnaire and attitude scale usually filled out by trainee shortly after entrance to the field component of his training program.

INT - Interview form used by project staff to record information asked of trainee, cooperative teacher, and for building principal

PD - Questions asked of program directors

OBS - Form used to record information during classroom observations

PR - Rating of trainee by building principal

PTQ - Questionnaire completed by trainee around time of completion of his training program (not included in this appendix)

MEMO

TO: Persons Asked To Fill Out Forms

FROM: Burton Grover, Project Director, Teacher Education Research Study

SUBJECT: Purpose of the Forms and The Private Nature of the Information Requested

We are engaged in a needed research project on the Teacher Education program at Western Washington State College. We wish to find out how much of what a teacher does in a classroom is related to the type of training he has received. To discover this, we need to observe a number of classes, to interview selected trainees, and to ask them to complete certain paper and pencil instruments. The information collected will be confidential (see below). For this research project we are selecting trainees from seven different training programs, and we are asking you to cooperate as one of the selected trainees.

You are asked initially to complete a set of forms and attitude instruments (total time required should be less than an hour). Toward the end of your student teaching or internship you will be asked to complete another set which also should take less than an hour's time. In between, you can expect to be interviewed once and your classroom to be observed at different times by project people.

The purpose of this project is not to study information on particular trainees, but to look at patterns of information among different training programs. We have eventually to describe the effects of various teacher training projects on what happens in the classroom. We are in no way attempting to evaluate or describe individuals. Nevertheless, in order to describe the different training projects, we need numerous background details from each individual in the study.

In order to protect the privacy of the information collected and still be able to use it for research purposes, the following data management system has been set up. Names are to be placed on the front of various information forms, then code numbers are assigned to each name. The code number, but not the name, will be placed on the information form and in the computer data storage system. The key to pairing names with code numbers will be kept in a locked file, available only to the project personnel through the Project Director as needed for coding information as it comes in. (This file will contain only name-number pairings, not the data itself.) The coded data (but not the names) will be on limited access data files in W.W.S.C.'s computer. The project personnel foresee no need for pulling the data on a single individual and pairing it with the name. No employer, potential employer, federal personnel or non-project school personnel will be allowed access to the data. If you wish to know what data has been collected on you, it will be pulled for your examination upon written request.

We hope that we will be able to obtain findings useful for improving our training programs as a result of your cooperation.

TRAINEE INFORMATION RECORD -- WWSC

This is confidential information intended to shed light on types of people who enter the programs. This is not an evaluation of the individual trainee or program. The data on this form will be kept seperate from your name. (The first thing we will do is separate this page from the rest of the instrument.) Access to this data will be restricted. No one but the Project Director will have access to the code through which names will be paired with this data.

1. FULL LEGAL NAME, LAST NAME FIRST

_____

Surname First Middle

2. HOME ADDRESS

_____

Street City State Zip

3. CURRENT MAILING ADDRESS IF DIFFERENT FROM ABOVE

_____

Street City State Zip

4. STUDENT ID NUMBER: _____

(Leave blank if you can not remember it)

5. Date of Birth _____ Place of Birth _____ (City) _____ (State)

6. Sex (Circle one) male female

7. Marital Status (Circle one)

single married divorced widowed

8. What is your present standing? Place an "X" in appropriate space:

_____ Graduate

_____ Undergraduate

_____ Previously received bachelor's degree, but not enrolled in graduate program at present.

9A. Undergraduate Academic Major (If you have NO major other than Elementary Education, write in "Elem. Educ.")_____

9B. Provide the following GPA's as best you can recall them for your undergraduate work. Use two decimal places if you can recall the exact figure.

_____ GPA for all undergraduate work prior to this year

_____ GPA for all work done for the undergraduate academic major

_____ GPA for the last undergraduate year in college before this year.

10. Last High School attended:

Date of Graduation:_____

Name of Institution:_____

Location:_____

Size of Graduating Class:_____

11. Universities and Colleges at which you have registered to date:

Degree	Name of Institution	Location	Years

12. How many Brothers and Sisters have you? (If NONE, so state.)

_____ Younger _____ Older

13. In how large a community did you live during your junior high school years (ages 12-14)? (Place an "X")

_____ Under 5,000

_____ Between 5,000 and 35,000

_____ Between 100,000 and 500,000

_____ Over 500,000

_____ Suburb of Metropolitan City

_____ Rural

14. How much concern have the following caused you during the past twelve months? Check one for each item. (Place an "X")

	much	some	none
physical illness	_____	_____	_____
emotional problems	_____	_____	_____
family problems	_____	_____	_____
social relationships	_____	_____	_____
financial difficulties	_____	_____	_____
academic problems	_____	_____	_____
career problems	_____	_____	_____

15. How long has it been since you left high school? (Place an "X")

One year _____ Four years _____

Two years _____ Five to nine years _____

Three years _____ Ten or more years _____

16. Where were you living during your junior high school years (ages 12-14) if different from place of birth? (Place an "X")

_____ New England _____ Rocky Mountain States

_____ Mid-Atlantic _____ Southwest

_____ South _____ California

_____ Mid-West _____ Pacific Northwest

_____ Great Lakes Area _____ Other (Alaska, Hawaii, etc.)

_____ Plains States

17. Father's (or legal guardian's) occupation while you were in junior high school (ages 12-14): _____

If a farmer, describe how large was the farm (include approximate acreage).

_____

If a self-employed businessman, describe how large was the business (include approximate number of employees). _____

_____

18. Mother's occupation. To be completed only if mother provided principal source of income. (Place an "X")

_____ Clerical

_____ Farmer

_____ Housewife; income from investments

_____ Managerial (own business, company manager, executive)

_____ Professional (Doctor, Lawyer)

_____ Teacher

_____ Sales (retail business, insurance)

_____ Semi-skilled work (factory worker)

_____ Service, recreation (motel employee, waitress)

_____ Technical (data processor, medical or dental technician)

_____ Transport, communication (telephone operator, etc.)

_____ Unskilled worked (farm worker, etc.)

_____ Other

19. What is the highest level of education that you expect to attain during your lifetime? Check ONE ONLY. (Place an "X")

_____ Bachelor's Degree

_____ Master's Degree

_____ Ph.D.

_____ Professional degree (law, medicine, dentistry)

_____ Other

_____ I have no idea

20. Mother's education, highest level completed. Check ONE ONLY. (Place an "X")

_____ Elementary school; grade 8 or less

_____ High school, 1-2 years

_____ High school, 3-5 years

_____ Some post high school (trade, vocational, technical, university)

_____ Completed Bachelor's degree

_____ Some graduate study

_____ Completed graduate degree

_____ Do not know

21. How much teaching experience have you had prior to your current training program, if any (exclusive of Sunday School, Boy Scouts, etc.)

_____ Years _____ Months

If NONE, check here:_____

22. Previous experience in working with children.

Type of Activity (e.g., baby sitting, swimming coach)	Amount of Time Spent (e.g., 10 hrs/week for 10 years, 3 weeks summer camp for 2 years)

23. When you think of a college instructor, how important is each of the following to you? Check ONE for each item. (Circle appropriate number.) Do not give all items the same rating.

Explanation of scale: Very Important 1 2 3 Of Some Importance 4 5 No Importance at All 6 7

Knowledge in own subject	1 2 3 4 5 6 7
Broad general knowledge in all fields	1 2 3 4 5 6 7
Possesses the techniques of good teaching	1 2 3 4 5 6 7
Is a good friend to the student	1 2 3 4 5 6 7
Insists on assignments completed on time	1 2 3 4 5 6 7
Conducts his course basically as a lecture	1 2 3 4 5 6 7
Requests that student call him by his first name	1 2 3 4 5 6 7
Encourages active student participation in class	1 2 3 4 5 6 7
Examines student work very carefully	1 2 3 4 5 6 7

24. Student activities. In column 2 name the activity, in column 3 indicate the number of quarters you participated in the activity, in column 4 show the approximate number of hours spent per week during the quarter you participated, and in column 5 check if you were an officer or captain in the organization or activity. An example is given on the first line.

1. Category of Activity	2. Name of Activity	3. Quarters	4. Hours	5. Officer or Captain
Athletics (example)	tennis	3	6	✓
Music				

1. Category of Activity	2. Name of Activity	3. Quarters	4. Hours	5. Officer or Captain
Dramatics Forensics				
Political				
Social				
Student Government				
Other (Include Scholastic Clubs or Off-Campus Organizations				

25. Name any previous employment. Past five (5) jobs OR most significant five (5) jobs.

_____

_____

_____

_____

_____

Given below are groups of statements about which we all have beliefs, opinions, and attitudes. The first group is about your teacher training program, the other groups have statements about more general matters. We all think differently about each matter, and this scale is an attempt to let you express your beliefs and opinions. There are no right and wrong answers. Please observe the following rules for marking:

+3 When you are in complete agreement with the statement.
+2 When, on the whole, you agree with the statement.
+1 When you are in doubt, but if forced to choose, will agree with the statement.
0 When you are totally unable to decide.
-1 When you are in doubt, but if forced to choose, will disagree with the statement.
-2 When, on the whole, you disagree with the statement.
-3 When you are in complete disagreement with the statement.

___4. Letting your friends down is not so bad because you can't do good all the time for everybody.

___5. It is the duty of each person to do his job the very best he can.

___6. People would be much better off if they could live far away from other people and never have to do anything for them.

___7. At school I usually volunteered for special projects.

___8. I feel very bad when I have failed to finish a job I promised I would do.

V. OPINION INVENTORY B

___1. In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.

___2. My blood boils whenever a person stubbornly refuses to admit he's wrong.

___3. There are two kinds of people in this world: those who are for the truth and those who are against the truth.

___4. Most people just don't know what's good for them.

___5. Of all the different philosophies which exist in this world, there is probably only one which is correct.

___6. The highest form of government is a democracy and the highest form of democracy is a government run by those who are the most intelligent.

___7. The main thing in life is for a person to want to do something important.

___8. I'd like it if I could find someone who could tell me how to solve my personal problems.

___9. Most of the ideas which get printed nowadays aren't worth the paper they are printed on.

___10. Man on his own is a helpless and miserable creature.

___11. It is only when a person devotes himself to an ideal or cause that life becomes meaningful.

___12. Most people just don't give a "damn" for others.

___13. To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.

___14. It is often desirable to reserve judgement about what's going on until one has a chance to hear the opinions of those one respects.

___15. The present is all too often full of unhappiness. It is only the future that counts.

___16. The United States and Russia have just about nothing in common.

___17. In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.

___18. While I don't like to admit this even to myself, my secret ambition is to become a great man, like Einstein, or Beethoven, or Shakespeare.

I. OPINIONS ABOUT TEACHER TRAINING PROGRAM

____1. So far in my education training, I have learned about things that are relevant to current problems in American education.

____2. I am confident that the training program in which I am enrolled will be doing a good job in preparing me to teach.

____3. If I had to do it over again, I would enroll in the same teacher training program.

____4. So far in my education training, I have learned little of any practical value for teaching.

____5. I would know much more about teaching methods than I do now if I were in a better training program.

____6. The instructors and teachers in my teacher education program have generally been very competent.

____7. My ideas about the basic aims of education have changed greatly since I started in this teacher education program.

II. OPINION INVENTORY A

____1. An expert who doesn't come up with a definite answer probably doesn't know too much.

____2. There is really no such thing as a problem that cannot be solved.

____3. A good job is one where what is to be done and how it is to be done are always clear.

____4. In the long run, it is possible to get more done by tackling small, simple problems rather than large and complicated ones.

____5. What we are used to is always preferable to what is unfamiliar.

____6. A person who leads an even, regular life in which few surprises or unexpected happenings arise, really has much to be grateful for.

____7. I like parties where I know most of the people more than ones where all or most of the people are complete strangers.

____8. The sooner we all acquire similar values and ideals the better.

____9. I would like to live in a foreign country for a while.

___10. People who fit their lives to a schedule probably miss most of the joy of living.

___11. It is more fun to tackle a complicated problem than to solve a simple one.

___12. Often the most interesting and stimulating people are those who don't mind being different and original.

___13. People who insist upon a 'yes' or 'no' answer just don't know how complicated things really are.

___14. Many of our most important decisions are based upon insufficient information.

___15. Teachers or supervisors who hand out vague assignments give a chance for one to show initiative and originality.

___16. A good teacher is one who makes you wonder about your way of looking at things.

III. SOCIAL ATTITUDES A

____1. In order to achieve what we need in our society, the system has to be drastically changed.

____2. In practice the rich and the poor are not equal before the law.

____3. Basically, the values of the establishment are hypocritical.

____4. The best way to solve social problems is to stick close to the middle of the road, to move slowly and to avoid extremes.

____5. Society should be quicker to throw out old ideas and traditions and to adopt new thinking and customs.

____6. True democracy is limited in the United States because of the special privileges enjoyed by business and industry.

____7. Generally, the government does a good job in protecting our self-interest.

____8. There are legitimate channels for reform which must be exhausted before attempting disruption.

____9. Anyone who violates the law for reasons of conscience should be willing to accept the legal consequences.

___10. Traditions serve a useful social function by providing stability and continuity.

___11. The bureaucracy of American society makes it impossible to live and work spontaneously.

___12. A problem with most older people is that they have learned to accept society as it is, not as it should be.

___13. The structure of our society is such that self-alienation is inevitable.

___14. While man has great potential for good, society brings out primarily the worst in him.

IV. SOCIAL ATTITUDES B

____1. It is no use worrying about current events or public affairs; I can not do anything about them anyway.

____2. Every person should give some of his time for the good of his town or country.

____3. Our country would be a lot better off if we didn't have so many elections and people didn't have to vote so often.

___19. Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.

___20. It is better to be a dead hero than to be a live coward.

Name_____

Program_____

1. Grade level of children taught by the trainee (if more than one grade level, take average) _____

P CT T 2. What proportion of the children in classes taught by the trainee are of the following minority groups: Obtain percentage estimate if possible; if not, obtain fractional estimate. If the student teaches more than one class, record information seperately for each class.

		0	1/10	1/10-1/5	1/5-2/5	2/5-3/5	3/5+
Black	____%	____	____	____	____	____	____
Indian	____%	____	____	____	____	____	____
Mexican-American	____%	____	____	____	____	____	____

Estimates obtained from: Principal Coop T. Trainee Coll. Supv.

Cross-checked with: Principal Coop T. Trainee Coll. Supv.

(If conflicting estimates are given, record the differing estimates, indicate who gave what figures, and comment)

P CT T 3. What proportion of the children in class(es) taught by trainee are from economically disadvantaged families? (Basis: Federal guidelines for determining eligibility for various poverty programs) Obtain percentage estimate if possible; if not, obtain fractional estimate. If the student teacher teaches more than one class, obtain separate estimates for each class. If you obtain estimates for more than one person, indicate by recording separate figures for each class.

		0	1/10	1/10-1/5	1/5-2/5	2/5-3/5	3/5+
Principal	____%	____	____	____	____	____	____
Coop T.	____%	____	____	____	____	____	____
Stu. T.	____%	____	____	____	____	____	____

CT P T 4. Rural vs. Urban. What portion of the children in class(es) taught by trainee are rural, i.e. do not live in urban or suburban areas, towns, or incorporated villages? Obtain percentage (preferred) or fractional estimates. If you obtain separate estimates, record separately. Then indicate if remainder of pupils live in urban, suburban, or small town incorporated village setting. (If in doubt, record name of community.)

		0	1/10	1/10-1/5	1/5-2/5	2/5-3/5	3/5-4/5	4/5+
Self-evident	___%	___	___	___	___	___	___	___
Coop T.	___%	___	___	___	___	___	___	___
Principal	___%	___	___	___	___	___	___	___
Trainee	___%	___	___	___	___	___	___	___

Remainder of children are:

_____ Small town _____ Suburban _____ Urban

T 5. Has the trainee worked on any instructional modules (training packages)? Of these, how many have been studied thoroughly (worked through to criterion)? Show list if necessary.

T 6. How many course credits in professional education (including psychology and special methods) have you earned or are enrolled in in the field (school setting)?

7. How much influence have you had over the following types of decisions concerning your training in education:
(Compared to college faculty and college supervisors, cooperating teacher, principal, professional associates, parents and community representatives?

6 - More influence than anybody else
5 - As much influence as anybody else
4 - As much influence as anybody else, but several people have equal influence
3 - Some influence but others have more
2 - Slight influence
1 - No influence

_____ Academic, substantive content of professional education training (not counting student teaching or practicum but including lab phase. Namely, what you study about education.

_____ Student teaching assignment (where, what grade level, which cooperating teacher, etc.)

_____ Tasks and duties--the things you actually work on--during student teaching or internship.

_____ What you study about education during student teaching, if anything over and above regular student teaching responsibilities.

____ How you are to be evaluated.

T or CT 8. To your knowledge, do any parents or parent groups, or teacher associations have any influence over any of the decision areas listed in #7?

T CT 9. How many times has the trainee been observed with a conference following the observation?

_____ By a college supervisor (including joint appointee)

_____ By the cooperating teacher

(in the spaces indicate how many of the observations were preceded by a planning conference. If different numbers are given by the trainee and the CT, put the T's number first and the CT's number second in the same space.)

T 10. Have you engaged in any micro-teaching experiences, that is structured episodes with children that were set up for the trainee to learn or demonstrate a specific teaching competency or were otherwise focused on a specific aspect of teaching. Such episodes usually are observed, recorded and subsequently analyzed. (and may be a normal part of the lab phase). If so, how many?

CT 11. How many student teachers has the cooperating teacher supervised prior to the current trainee? (In project 1070, ask the fellow. In Teacher Corps, if there is no cooperating teacher as such, ask the Team Leader.)

T 12. So far in your education training, you have studied a number of things and engaged in a number of activities. To what extent have these assignments and activities been standard for all students in your program and to what extent have they been uniquely selected and adapted to you as an individual?

_____ Most assignments and activities individually adapted

_____ Half or more individually adapted

_____ Several individualized tasks, but most are standard

_____ A few individually adapted

_____ Nothing individually adapted

CT P 13. (a) A formal study of educational psychology, whether taught on campus or in the field, is very important for teacher trainees.

SA A MA N MD D SD

(b) In general, formal education courses, as they are usually taught, are not too important for a teacher to take.

SD D MD N MA A SA

(c) Usually foundation courses in education are a waste of time.

SD D MD N MA A SA

(d) The only way a person can learn teaching methods is to work with children; education courses cannot do the job.

Program Information Inventory

1. What number of college credits in professional education and special education do your trainees earn in the field (public school setting)?

2. Do any of your trainees study and work through instructional modules? If so, how many are scanned or partially studied? How many are studied thoroughly and have criterion demonstrated?

3. For various decision-making aspects of your training program--content of education courses, assignment of student teachers, evaluation of trainees--what relative influence is exerted by cooperating teachers, parent groups, school administrators compared to college staff?

4. (For each trainee in study) How many times have the trainees been observed with the observation followed by a conference? Preceded by a conference?

5. Is micro-teaching part of your program? If so, how many micro-teaching episodes are engaged in by your trainees?

6. Compared with features such as field-centeredness and competency-based, how important a feature is individualization of instruction for trainees?

    a. The most important feature
    b. As important as any other feature
    c. Important, but not as important as other features
    d. Not too important

7. On a five-point scale (for each trainee), rate the effectiveness of the cooperating teacher--both in terms for the specific trainee assigned to him and in terms of trainees in general.

ass ation	Interaction	Cognitive Level

l Attention Scan

l Attention Scan

ents

Class tuation	Interaction	Cognitive Level

pil Attention Scan

dividualization rating: _____ Comments

ecial materials or activities

mments

Class management:_____ Comments:_____

_____

(teacher) dull ___ ___ ___ ___ ___ ___ ___ stimulating

(class) disorganized ___ ___ ___ ___ ___ ___ ___ systematic

(teacher) {aloof / unsympathetic / harsh} ___ ___ ___ ___ ___ ___ ___ {responsive / understanding / kindly}

OBSERVATION SUMMARY SHEET

A. CLASS SITUATION (RECORD NUMBER OF OBSERVED TIME SEGMENTS FOR EACH OF THE CATEGORIES)

_____ "LP" -- Formal presentation

_____ "L" -- Informal lecture or discussion for whole class

_____ "S" -- Class working primarily in small groups

_____ "i" -- Class working primarily as individuals

_____ TOTAL

B. INTERACTION (INDICATE NUMBER OF TIME SEGMENTS DURING WHICH THE INDICATED CODE WAS RECORDED)

Class Situation				
LP	L	S	i	
__	__	__	__	*Any indirect (1, 2 or 3), either single or double symbol
__	__	__	__	*Extended indirect (22, 33, 23, etc.)
__	__	__	__	Any direct (6 or 7), either single or double symbol
__	__	__	__	Extended direct (66, 77, 67, etc.)
__	__	__	__	Pupil-initiated comment (either "9" or "99")
__	__	__	__	Extend pupil-initiated comments (99s)
__	__	__	__	Any extended lecture or information presentation (55s)
			_____	Number of time segments during which teacher-pupil interaction was an expected part of the activity
			_____	Number of time segments during which teacher-pupil interaction was not an expected part of the activity (e.g., movie, sustained silent reading) (When in doubt, such as when teacher is circulating among small groups, count time segment in former category)
			_____	Total time segments observed

*If any number of these did <u>not</u> follow pupil talk, comment.

C. QUESTIONS (RECORD NUMBER OF TIME SEGMENTS DURING WHICH ANY INDICATED QUESTION TYPE OCCURRED OR WAS SOMETHING PUPILS WERE WORKING ON)

_____ K

_____ C

_____ A

_____ S

_____ E

_____ No questions or procedural questions only

_____ Total time segments during which questions (other than procedural questions) were recorded

_____ Total time segments occurred

D. PUPIL ATTENTION SCAN (RECORD AS RATIOS, ONE FOR EACH SCAN, EACH AS 48/23)

_____ _____ _____ _____

E. INDIVIDUALIZATION RATING(S)

(Ordinarily, only one score is recorded for each observation. However, if a shift of class activity occurs during observation which changes the individualization picture, you may record more than one score and write in comments)

_____ _____

F. Class Management_____

G. Dull to Stimulating_____

H. Disorganized to Systematic_____

I. Harsh to Kind_____

Trainee_____

Please give your frank appraisal of the above-named teacher trainee on the three items below. For each item circle the letter of the response that comes closest to your honest opinion. Even if you have had little contact with the trainee, please guess at ratings based on any impressions you have--whether based on rumors, hearsay, appearance, whatever.

This information will be used for an analysis of our teacher training programs and not for the evaluation of the trainee nor for his credentials. When we receive this rating, we will code it and then detach the name of the trainee.

1. Suppose the above-named teacher trainee applied for a teaching position in your particular building. Suppose there was a vacancy at a grade level or subject similar to that in which the trainee is currently doing his student teaching:

   Would you wish to hire this trainee:

   a. Never, not even if there were no other applicants

   b. Only if there were no other applicants

   c. Probably, if there were only a few other applicants

   d. Probably, even if there were other reasonably strong applicants

   e. Without even bothering to look for other applicants

2. Suppose you were hiring teachers for a school system about which you knew little except that it is a "typical" school with "typical" children.

   Would you hire this trainee:

   a. Never, not even if there were no other applicants

   b. Only if there were no other applicants

   c. Probably, if there were only a few other applicants

   d. Probably, even if there were other reasonably strong applicants

   e. Without even bothering to look for other applicants

3. Overall, compared to all student teachers you have had experience with, how would you rate the above-named trainee?

   a. Much above average

   b. Above average

   c. Average

   d. Below average

   e. Much below average